VOL. IV. JULY, 1914 No. 7

AMERICAN
JOURNAL OF PUBLIC HEALTH

CONSERVATION OF VISION.

FRANK ALLPORT, M. D.,
Chicago.

Read before the combined meeting of the Chicago Medical Society and the Chicago Ophthalmological Society, Chicago, Ill., May, 1914.

Societies for the Conservation of Vision have been formed in various portions of the United States. They exist under different conditions. The membership in some is medical and in others, lay and medical.

In Pennsylvania, Indiana, Missouri, etc., the organization exists as a Committee of the State Medical Society; in New York, Illinois, etc., independent associations have been formed; in Ohio the "Commission," as it is called, is a part of the state government. There is also a National Association, independent in its nature, and mixed in its membership. Some of these associations, such as New York, Massachusetts, Maryland, Ohio, etc., are doing energetic work, while others are inactive and almost useless.

At the 1913 meeting of the American Medical Association, the Council on Health and Public Instruction appointed a Committee on Conservation of Vision, consisting of E. M. Alger, New York City; W. E. Bruner, Cleveland, Ohio; H. D. Bruns, New Orleans, La.; J. J. Carroll, Baltimore, Md.; E. C. Ellett, Memphis, Tenn.; Harold Gifford, Omaha, Neb.; Vard Hulen, San Francisco, Cal; W. B. Lancaster, Boston, Mass.; F. Park Lewis, Buffalo, N. Y.; William C. Posey, Philadelphia, Pa.; W. H. Wilder, Chicago, Ill.; Casey A. Wood, Chicago, Ill.; Hiram Woods, Baltimore, Md.; and Frank Allport, Chicago, Ill.; of this committee I was appointed chairman. The object of the committee was to produce interest and action in conserving vision, and to endeavor to concentrate under the auspices of the American Medical Association activities calculated to preserve the sight of this, and coming generations.

We began our work by utilizing the machinery of the American Medical Association. The Council on Health and Public Instruction sends out

each week a sheet called the *Press Bulletin*. This is sent free to nearly six thousand newspapers, and the printed matter upon its face can be used by the papers as editorials, news matter, etc. The printed matter consists of short, plainly written articles on health topics. They are unsigned. The council employs clipping bureaus, and through them it is ascertained that these articles are very extensively used. They are shaping public thought along medical lines in this country. The Conservation of Vision Committee has an appropriate article in the *Bulletin* each week, and its articles on "The Eyes and the Movies," "Face Powder and the Eyes," "Cross-Eyes," "Illumination in Homes, Offices, Schools, etc.," "Golf Accidents to the Eyes," "What is a Cataract," etc., have been extensively copied all over the country. The committee feels that this is a most important part of its work—as it reaches so many people, and is under direct control.

The next work of the committee was to write, print and circulate twenty pamphlets on popular eye topics. These are called *The Conservation of Vision Pamphlets* and are numbered from one to twenty. They are handsomely gotten up, in uniform style. The authors' names are given. They are short and plainly written, so that non-medical people can easily understand them. They are well illustrated. They sell for five cents a copy, or one hundred copies for $3.50. They are also freely given away on proper application to either me, as chairman of the committee, or to Dr. F. R. Green, Council on Health and Public Instruction, American Medical Association, 535 North Dearborn Street, Chicago, Ill. Sets of these pamphlets have been sent to public libraries, women's clubs, teachers' institutes, state legislatures, health boards, etc., all over the United States, and the sale and distribution has been extensive. Some of the pamphlets are already in their third edition. Arrangements are being made to distribute Doctor Carroll's Pamphlet on the "Eyes of Transportation Employees" to every railroad surgeon in the United States. I give here a list of the pamphlets:

Pamphlet I. School Children's Eyes, by Dr. Frank Allport, Chicago.
Pamphlet II. Industrial and Household Accidents to the Eye, by Dr. Harold Gifford, Omaha.
Pamphlet III. Wearing Glasses, by Dr. W. B. Lancaster, Boston.
Pamphlet IV. The Relation of Illumination to Visual Efficiency, by Dr. Ellice M. Alger, New York.
Pamphlet V. Trachoma in Eastern Kentucky, by Dr. J. A. Stucky, Lexington, Ky.
Pamphlet VI. Auto-Intoxication and the Eye, by Dr. H. D. Bruns, New Orleans.
Pamphlet VII. Eye-Strain, by Dr. Hiram Woods, Baltimore.
Pamphlet VIII. Lenses and Refraction, by Dr. Frank Allport, Chicago.
Pamphlet IX. The Eye and Its Functions, by Dr. Frank Allport, Chicago.
Pamphlet X. Care of the Eyes, by Dr. Frank Allport, Chicago.
Pamphlet XI. Infant Blindness, or Ophthalmia Neonatorum, by Dr. F. Park Lewis, Buffalo, N. Y.

Pamphlet XII. Ordinary Eye Diseases, by Dr. L. W. Dean, Iowa City, Iowa.
Pamphlet XIII. Usual and Unusual Eye Accidents, by Dr. E. C. Ellett, Memphis, Tenn.
Pamphlet XIV. The Eyes of Transportation Employees, by Dr. J. J. Carroll, Baltimore.
Pamphlet XV. Ocular Hygiene in Schools, by Dr. S. D. Risley, Philadelphia.
Pamphlet XVI. Whisky, Tobacco and Drugs and the Eyes, by Dr. Edward Jackson, Denver.
Pamphlet XVII. The Oculist and the Optician, by Dr. Melville Black, Denver.
Pamphlet XVIII. Preparation for Blindness, by Dr. F. Park Lewis, Buffalo.
Pamphlet XIX. What to Do for Blind Children, by Dr. F. Park Lewis, Buffalo.
Pamphlet XX. Blindness from Wood Alcohol, by Dr. Casey Wood, Chicago.

I would like to suggest that these are excellent pamphlets for doctors to keep in their offices and on their reading tables for distribution and education. I am constantly giving away these pamphlets to patients who, having seen them, desire them. Some people wish information on one subject and others desire knowledge along other lines. The pamphlet topics are sufficiently varied to fill the wants of most people. Besides this it often happens that an oculist desires to instruct a certain patient on a particular subject. Almost all eye subjects are mentioned in these pamphlets and are plainly and understandingly discussed, and it would be far easier to give such patients an appropriate pamphlet or two than to take the time to explain the subject personally.

It seemed desirable to the committee to create a national sentiment in favor of conservation of vision, and for this purpose it was determined that lectures on this subject should be delivered in each state. A lecture bureau manager was appointed in each state who was willing to superintend the work in his state. Where a state organization for the conservation of vision existed, one of its officers was selected to carry on the work; but where no such state organization existed a prominent, energetic and willing oculist was selected. The plan was about as follows:

The "state manager," as he is called, should enlist the assistance of all the oculists he could to assist him in his work, acting, wherever possible, in harmony with local and state medical societies, both ophthalmological and general. Prominent and energetic oculists should be found who were willing to lecture on the Conservation of Vision on invitation. Such lecturers should reside in different portions of the state, so that long and expensive journeys should not be necessary. The state manager should correspond with local medical societies, women's clubs, teachers' institutes, boards of health and education, etc., and secure invitations for a lecturer to go to different cities to talk on the Conservation of Vision. Lectures should, if possible, be arranged for one month in advance, to give time for preparation, and necessary ethical advertising. The lecturers expenses should, if possible, be paid for by the ones issuing the invitation. The lecture should last about one hour and should be given in plain and un-

scientific language. A discussion should follow. In order to make these lectures easy to deliver, the committee prepared a box of about thirty colored and uncolored stereopticon slides and sent them to each state manager, to be loaned to his associates in the work whenever a lecture was to be delivered. These slides were securely packed in a strong box and locked with a Yale key. The box could be shipped from place to place by express, the key going to its destination by mail. In addition to this a pamphlet was prepared entitled "A Plan of Campaign for the Conservation of Vision." This pamphlet contained a full description of the plan, and what it was proposed to accomplish. A kind of skeleton lecture was included in this pamphlet suggesting subjects, etc., to be referred to in the lecture. These pamphlets were freely dispensed to all state managers, who distributed them to their associates in the work. Besides this, each lecturer was placed on the mailing list for the *Press Bulletin*, to which reference has already been made, so that he could see the new articles as they came out each week, and perhaps use them in his lectures. Each lecturer also received a complete set of the *Conservation of Vision Pamphlets*, as it was thought that these would greatly assist him in preparing his lectures. Quantities of the "Vision Charts for Schools," were sent into each state so that the lecturers could have all they desired of them. While these lectures were intended to cover all avenues of vision conservation, it was especially hoped that it would result in the use of the Credé treatment of the eyes of all new-born babes; in the lessening of shop accidents; and in the annual and systematic examination of all school children's eyes by school teachers; for it is reasonably certain that if these three procedures could be universally adopted, 80 per cent. of all blindness could be eliminated from this country. The Credé treatment for new-born infants, the providing and using of goggles and other shop safety devices for eyes, and the annual, systematic examination of school children's eyes, ears, noses and throats by school teachers in the United States could be accomplished at an annual cost which would not exceed $250,000 per annum. It costs $15,000,000 a year to care for the dependent blind in this country alone, to say nothing of those children more or less incapacitated by defective or diseased ears, noses and throats. Inasmuch as the examination of ears, noses and throats is provided for in the questions annexed to the vision chart, for the teachers' use, and as abnormal conditions of these organs can be investigated easily and speedily, at the same time the eyes are examined, and as the benefits to be achieved by this addition are enormous, it is earnestly recommended that teachers will include the ears, noses and throats in their investigations.

Emphasis should be laid on several points connected with these annual, systematic examinations of school children's eyes, etc., by school teachers:

First. The examinations are simple and require no medical education.

Second. Teachers are not expected to make diagnoses. They merely ascertain the fact through the questions, that something is wrong, and leave the rest to the doctor selected by the family for consultation.

Third. A child can be easily examined in five minutes and each teacher should examine the children attending her own room. By subdividing the work in this way, all the children in any city of any size can be easily examined in one day. A definite day in the early fall of each year should be set aside for these tests in all cities.

Fourth. These tests not only benefit the children by leading to the correction of their eye, ear, nose and throat defects, but the correction of these defects *benefits the teachers*, because such corrections usually add materially to the intellectual and moral character of the children, thus rendering them much easier to teach, and more pliable to discipline. Teachers should, therefore, be glad to do this work, without grumbling, both from selfish and unselfish reasons.

Fifth. There is no objection to these examinations being made by doctors or school nurses. This, however, would cost large sums of money and boards of education and health are never allowed enough money for even ordinary purposes. This is a fact which might as well be frankly recognized and acted upon. Let teachers, therefore, devote one day in the year to this work and get it done. They are easily capable of doing it. It takes no extra time for them. It is a benefit to themselves as well as to the children. It costs practically nothing. Therefore, let it be done.

The question may be pertinently asked, what has been the result of the state lectures? This has varied greatly in different states. No man was compelled to accept the position of state lecture bureau manager; the acceptance was voluntary and was decided after the work and ideals were thoroughly explained. After a promise of conscientious work was given, the box of slides and printed matter were sent, which represented an outlay of about twenty-five dollars in money, for each state. In some states this (at least, so far as results are concerned) has ended the matter. So far as I know, no work whatever has been done in some states; no lectures have been delivered; and nothing has been accomplished. My letters have been unanswered; my appeals have been unheeded. Perhaps a letter has been finally, at the end of the season, received, informing me that I do not understand conditions in that particular state, or that sickness, or business, or moving, or bad weather, or some equally important reason has prevented taking up the lecture proposition. Of course, after a gentleman accepts a position of this kind, and agrees to do the work, I felt I had a right to depend upon his coöperation, and, having once appointed him, the state was left in his charge and I felt I had no right to interfere. It has been, therefore, most discouraging for me at the end of the season, when

it was about time for me to make my report to the Council on Health and Public Instruction, and when it was too late to change state managers, to realize that no *real* work had been accomplished in quite a number of states. In some states the work for one reason or another has been delayed, but still work has been done, as many lecture engagements have been made for next fall with medical societies, teachers' institutes, Chautauqua meetings, women's clubs, educational conventions, etc. But I rejoice to say that in most of the states honest, conscientious work has been accomplished, and excellent results have been achieved. The results are, of course, not all that could be desired, but still, considering that this is the first year of the committee's existence, I should be ungrateful, indeed, if I did not feel gratified and much obligated to those gentlemen who have given this project their time, their labor, and their means. I beg to present, toward the end of this article, a tabulated report of this work up to the time of giving this narrative into the hands of the printer.

The question as to the future of this work now remains to be discussed. I would recommend:

First. The continuance of a weekly article on the eye for the *Press Bulletin of the Council on Health and Public Instruction.*

Second. A few more *Conservation of Vision Pamphlets* on interesting subjects and the increased circulation of these pamphlets.

Third. The continuation of the conservation of vision lectures in the various states. Many more of these lectures should be delivered, and the state managers should be changed, where the present managers have not shown a reasonable interest in the work. From twenty to twenty-five new slides for the stereopticon should be made, that will more fully illustrate the subject.

Fourth. I was at first in favor of encouraging the formation of State Societies for the conservation of vision, these societies to possess complete self government, but all of them to declare themselves in affiliation with the Committee on Conservation of Vision, of the Council on Health and Public Instruction of the American Medical Association, by a slender thread of connection. I was also in favor of asking those states, already possessing state organizations, to join with us in the same sort of affiliation. I was also in favor of proposing an annual meeting of this affiliated organization and the formation of a national body of this nature for the conservation of vision. Time and experience have, however, considerably modified my views and I now believe that other plans are better.

In the first place, there is already a national society of this nature. It is, it is true, highly inactive but still it exists and should, I believe, be encouraged to an awakening activity.

In the second place, local conditions, in many of the states, are not conducive to friendly assistance. However well meant such assistance

may be, it will, in some states, be regarded as meddlesome interference, and as an effort to rob existing organizations, whether active or lethargic, of some credit, which it is felt should remain with the local organization, and not be shared with even a well intending interloper. These views, I presume, are but natural to those people who have worked hard to develop a praiseworthy state society. They want the credit for their work and should have it, and I believe it is better that they should be let alone, and not asked to merge their identity or work with that of another organization. My recommendation, therefore, for the future is, that this committee shall do what it can to inspire the formation of state conservation of vision organizations, either as independent medical and lay societies, or as commissions of the state governments. It shall stand ready to advise and assist such work in any possible manner, but it shall not suggest a formal connection of any description, with the Committee of the American Medical Association. This committee should also be equally ready to advise or assist state organizations that already exist, and should coöperate with them in any way they may properly request.

Fifth. I would recommend that the work of this committee be extended, so that it shall become a potent power in the community. It should have a central office with a paid, interested, intelligent, energetic secretary, who could and would from time to time journey from state to state, upon request, and assist in the formation and perpetuation of state societies for the conservation of vision. His traveling expenses should be paid by those who summon him to the various localities. He should have a well equipped office, with one or two stenographers, and a library and files, containing *everything* that is printed on the conservation of vision. This office should be recognized as a central bureau of assistance, advice, literature, laws, etc., where all questions concerning this subject can and will be intelligently and willingly answered. Plans should here be devised for the formation of societies; for constitutions and by-laws; for the best ways of carrying on the work; for the building of model laws; and the best means of influencing legislatures and boards of health, education, etc. The work of such an office would be enormous and its influence widespread. Its work and purposes would enlarge and develop as time progressed, and I do not see how this noble enterprise can reach its legitimate and ultimate purpose unless something of this kind is made possible. But to do this, considerable money would be absolutely necessary, and I, therefore, recommend that this money shall be forthcoming from some source and that the good work shall be encouraged to go on.

Sixth. The distribution in all schools of crisply and plainly written leaflets concerning the care of eyes, ears, noses and throats. They should be taken home so that the parents can read them. They should be printed in various languages.

Perhaps even a better plan would be to have suggestions of this kind printed on the blank fly-leaf of all school books. The expense of printing would be almost nothing and the benefits to be derived would be incalculable.

I wish to thank Dr. H. B. Favill, Dr. F. R. Green and the Council on Health and Public Instruction for the moral and financial assistance they have rendered our committee. I also wish to thank all those who have written for the *Press Bulletin* and the *Conservation of Vision Pamphlets*. I also wish to thank all those who have assisted us in the work of the state lecture bureaus.

No.	State.	Manager.	Number of lectures.	Number of lecturers.	Number of cities.	Estimated size of audiences.
1	Ga.	Dunbar Roy	10	10	10	1,975
2	S. C.	C. W. Kollock	10	8	6	950
3	Ala.	S. Ledbetter	8	6	7	1,000
4	Ore.	J. L. McCool	3	1	1	300
5	N. C.	C. W. Banner	7	4	4	2,000
6	Kans.	R. S. Magee	7	5	6	1,050
7	N. H.	E. Fritz	8	7	8	1,725
8	Wyo.	G. L. Strader	1	1	1	100
9	Tenn.	E. C. Ellett	4	4	4	850
10	N. Y.	F. P. Lewis	2	2	2	225
11	Ark.	H. Moulton	5	4	5	400
12	Mo.	C. Loeb	15	12	8	2,300
13	Utah	D. M. Lindsay	25	12	24	4,675
14	Me.	J. A. Spalding	23	14	20	3,000
15	N. D.	J. H. Rindlaub	19	8	19	4,000
16	Conn.	G. H. Warner	2	1	2	850
17	Wash.	R. W. Perry	13	6	10	1,520
18	Md.	H. Woods	14	7	7	8,050
19	Ohio	W. E. Bruner	59	39	59	14,300
20	Ky.	J. A. Stucky	35	2	35	10,350
21	Del.	J. A. Ellegood	3	2	3	675
22	Idaho	R. L. Nourse	2	1	1	525
23	Va.	J. A. White	4	4	2	500
24	Minn.	F. C. Todd	3	3	3	500
25	Iowa	E. R. Lewis	3	3	3	500
26	Wis.	N. M. Black	1	1	1	250
27	Wash., D.C.	O. Wilkinson	2	1	2	200
28	Mich.	W. R. Parker	4	1	3	1,430
29	Ind.	A. E. Bulson, Jr.	45	20	25	5,000
30	Neb.	J. M. Patton	2	1	2	225
			339	190	283	69,425

I append a tabulated report of the State Lecture Bureau Campaign and desire to say that a large part of the work done in Ohio has been done under the auspices of the Ohio Commission for the Blind.

It will thus be seen that thirty states have reported work; 339 lectures have been delivered; by 190 lecturers; in 283 cities; to audiences aggregating, 69,425.

When to this is added the hundreds of thousands of people who have been reached through the newspapers, by the distribution of the *Press Bulletin*, and the thousands of people who have been reached by the *Conservation of Vision Pamphlets*, it will be seen that the work of this committee has not been in vain. I desire to also add that probably through the agency of the lectures, in the various states, school inspection of eyes, ears, noses and throats have been established in, at least, 200 cities.

7 West Madison Street.

THE COLLECTION OF MUNICIPAL WASTE.

W. F. Morse,

Consulting Sanitary Engineer, New York City.

Read before the Sanitary Engineering Section of the American Public Health Association, Colorado Springs, September, 1913.

For more than twenty-five years the American Public Health Association has been considering the subject of the Municipal Waste of Towns and Cities. The papers submitted and the discussions at the meetings have dealt mainly with the disposal of the waste, the usual means of collection being accepted as the only known methods.

The progress of this country in sanitation has brought attention to the exceedingly unsatisfactory, often unsanitary and always expensive collection means in use, and we are now asked to go back to the beginning of this question and collect and formulate data for the communities which will improve the present somewhat crude system, and, if possible, suggest a more hygienic and less costly way of doing this work.

The methods in use in the larger cities are based upon the local conditions that obtain in each place, but the statistics and data that are gathered in New York, Philadelphia, Chicago and Boston do not give much help when the smaller cities and towns investigate the subject.

What is needed is the tabulation of figures obtained from a larger number of communities, from villages of 3,000 upwards, and cities of the third and fourth classes, the classification and comparison of which will give assistance and greatly help all places in their efforts to improve their conditions. A brief statement of the present means for the collection of the Municipal Waste in the largest number of communities will aid in the present discussion.

The collection of waste is made by four different agencies.

1. *The Individual System*, by which every householder takes care of his own waste in his own way, with the least possible trouble and cost, with no responsibility for after results, with the only purpose of getting it off his premises in the shortest time. A cartman is hired to take away the ashes in winter, the refuse and cast-off material in the annual spring cleaning, and from time to time at other periods the organic matter as the accumulation requires. So annually the privy vault is cleaned at any price that can be agreed upon, and unless there is complaint from neighbors or the local health officer the duty of this household is discharged. The results are, the retention of refuse upon the premises until it becomes objectionable or offensive, the payment of far more than would be the cost if done under regulation by the town authorities, and the promiscuous dumping of all

manner of house refuse by an irresponsible cartman at any place where he will not be detected. There are many large towns that have no way but this of getting rid of their waste.

2. *The Licensed Collector Method.* In this case a number of cartmen are licensed to make the collections upon payment of a small registration fee to the town. A route is established by each collector and a certain number of patrons secured which are fairly well looked after. The dumping ground may be upon the collector's property, or at a place which is designated by the town. Frequently the town secures the locations, keeps men employed to level the loads, control the flying papers, to burn off the inflammable parts at intervals, and has a general oversight of the work through the sanitary inspectors. The advantages are that the collectors, being known, can be more readily detected in any infringement of the sanitary regulations, but there is no remedy for complaints of the householder on the score of infrequent or bad collection service or overcharge for the work. The cost as a rule, is more than double to the householder who employs this service than would be paid by the operation of a municipal system, and being voluntary, there is no way of enforcing the regular collection periods, or of preventing the accumulations of considerable quantities of objectionable or dangerous matters.

When there are no sewers, under this license system, the removal of *night soil* is almost universally carried on, the collectors being required to provide an equipment of sealed barrels, to be kept clean, the work to be done at certain hours, with the use of prescribed disinfectants, and the excreta to be conveyed outside the town limits.

The trouble comes with the final disposal of this most dangerous matter. Being prohibited from disposal in streams or bodies of fresh water, its disposal on land is obligatory. It has no value as a fertilizer unless it is composted by thorough and intimate mixtures of peat, muck or loam, until it is oxidized and assimilated, requiring long periods of time to convert it into material that can be handled without nuisance. The cost of labor for this work, the areas of ground to be occupied and the exceedingly offensive character of the process, with the uncertain and possibly dangerous results when applied to certain kinds of vegetable growths, makes the whole method unsatisfactory and of doubtful financial returns. The prices charged for vault cleaning are frequently excessive and there is no relief for the householder. If the money paid for this work were used for a proper collection and disposal service under municipal regulation, it would not only defray this cost but go far toward paying for the garbage collection also. In an eastern city where this work is done by city teams and men at a very moderate price for each vault cleaned, the receipts paid a profit of 37 per cent. upon the cost, which defrayed 34 per cent. of the cost of the garbage collection in the same place.

An examination of the comparative costs of the license system was made by an inland town, and it was found that the householders were paying five to eight dollars per year for imperfect and unsatisfactory work. It was also found that if a municipal system were adopted and the cost assessed pro rata upon the property valuation, the expense would be approximately $1.64 per household per annum or about 3 cents per week. Some of the disadvantages attending the license system of collection where the garbage is taken for hog feeding are stated in the report of the Commissioner of Public Works of an inland city of 100,000 population where this method has been used for many years.

"The principal objection to the present system of collection is due to the irregularity with which the collections are made in some parts of the city and the total absence of any system of collection in other parts. Cans of garbage are at times left to stand along the curb for several hours awaiting the irregular coming of the garbage collector. As a rule the garbage receptacles are not provided with covers and are frequently overturned by dogs and mischievous children and their contents scattered over the pavement to be left until the street is swept. The cans standing along the curbs are at all times very unsightly in appearance and during the warmer months become a decided nuisance from the obnoxious odors which are given off. When the garbage is not collected at all and has to be thrown with the ashes on the public dumps, the nuisance created is even worse. Here the garbage left near the surface quickly decays during warm weather to the discomfort and annoyance of all who happen to live to the leeward of the dumps. The garbage on the dumps also becomes the breeding place for myriads of flies which are, no doubt, more or less of a factor in the transmission of disease. Another nuisance from the garbage thrown on the dumps comes from the fires which are nearly always burning at some depth below the surface, the smoke of which is extremely pungent and disagreeable and often pervades the vicinity of the dumps for quite a distance.

A further nuisance of which the department receives many complaints, comes from the throwing of garbage and refuse on vacant lots and other out-of-the-way places. The detection of the offenders in such cases becomes very difficult, on account of the noxious materials usually being deposited under cover of darkness.

3. *The Contract System.* By this method the city advertises for bids for collection of the whole or a part of the waste. This is a most convenient way for the authorities and an improvement over the license system, but it has some disadvantages and as a whole is less satisfactory than a municipal method. The contractor is often compelled by competition to accept the work at a small margin of profit, giving poor service, and causing endless complaints.

His equipment and employees are not always of the highest class, the

contract being usually for a short period. There is limited responsibility, and his purpose is to do as little as possible at the smallest cost to himself. There must be maintained a vigilant oversight by the city authorities, and frequent inspections of the equipment, methods of work and of the final disposal of the waste, if this be deposited within the city limits. The householder benefits by a systematic collection at a somewhat lower cost, and if the work is done in a satisfactory manner, the city is relieved of a burden which it is often unwilling to accept. This is the method employed by the largest number of municipalities, and may be said to be the typical American system of collection.

4. *Collections and Disposal by Municipal Service.* In this case the city provides and maintains its own equipment and employees. This is at a somewhat greater cost than the contract method, but by efficient superintendence the results are far more satisfactory. The responsibility is upon the Chief of the Bureau and by him distributed through his associates, so that poor work can be noted and corrected without loss of time. The equipment and employees may also be used in other departments of the municipal service dividing the expense, and the whole force, with a good executive, if kept from political interference, can be brought to a high state of efficiency and take pride in their work.

The growth of municipal service in the collection of refuse is very marked in the past five years, due perhaps to the commission form of the city government where the work can be better kept free from political control, and more directly under the observation of the commissioner in charge.

The Comparative Cost of Garbage Collections. The data for tabulating the relative costs of collection service by one or the other methods referred to is difficult to obtain and not always reliable. From an inquiry made by the writer some years ago concerning the cost of garbage collections by the contract and by municipal service, it was ascertained that in fifteen cities of the first, second and third classes, the cost of collection was, 15 cents per capita per annum, and that in fifteen cities of the same classes, with approximately the same population, where the collections were made by municipal service, the cost was 22 cents per capita per annum. These figures should now be revised owing to the increased prices of labor and material, and the same cities now report the costs at 19 cents for contract service and 25 cents per capita for municipal system. These relative costs are an important factor in all inquiries of this sort, and it is to be hoped the standard forms for collection statistics which have been distributed by this committee will give us reliable figures on this point.

The Classification of Refuse as Affecting Collections.

When considering the waste collections from a community the different classes of refuse are divided as may be required by the proposed disposal service.

(a) Garbage—only, for reduction purposes.
Rubbish—separated for marketable portions.
Ashes—separated for ground filling.
(b) Garbage—for reduction or for feeding swine.
Ashes and rubbish for land filling.
(c) Garbage and rubbish for incineration.
Ashes for land filling.
(d) Garbage—rubbish and ashes collected together.
For land filling or incineration.
(e) Stable manure.
Bodies of the larger animals.

The advantage of these separate collections are apparent when the city has the means for separate treatment of each of the respective classes. New York, Brooklyn, Washington, Boston, each provide for three separations and recover values from each class of refuse, separately treated. In these cities the collection is made by the municipality, the disposal being done by contracting companies.

In St. Louis, Newark, Philadelphia, Cincinnati, Pittsburgh, the collections are made by contractors who also operate disposal works. The further separation of ashes and rubbish are made by the contractors after collection. The garbage separately collected in Providence, Worcester, Denver, Grand Rapids,St. Paul, Los Angeles and other cities and towns, especially in New England, is fed to swine.

In only two cities, Cleveland and Columbus, is the garbage municipally collected and disposed of by reduction. The ashes and rubbish are used for land filling. Where there are crematories or incinerators the garbage and rubbish are burned and the ashes dumped. Sometime the carcasses of the larger animals are also burned. When the Destructor methods are employed as at Richmond Borough, N. Y., Seattle, Milwaukee, Paterson, Atlanta, San Francisco, Berkeley, Montgomery, Halifax, Vancouver, the unseparated refuse is destroyed as collected from the household. Manure forms a part of the refuse in many places and is classified as garbage.

In the greater number of cities the collections are made of the garbage and rubbish by contract agency, and in the towns and villages by license method. There is comparatively little data which give reliable information of service for comparison. Each place deals with the question as it is connected with their local conditions and these vary so greatly with respect to the climatic environment, the character of the population, the kind of fuel used, the seasonal variations and other complex conditions, that it is

impossible to predicate situations that will apply to all. But there are some points common to all which may be taken as a basis for limited comparison.

The Average Quantities of Each Class of Waste. It is known that an American community of the usual mixed population will have a garbage output from 175 to 250 pounds per capita per annum, varying with local surroundings. The average quantities from fifteen large and medium-sized cities as reported in one inquiry was 199 pounds per capita per annum. Another more accurate report from four Ohio cities gave 190 pounds as the yearly average per capita. When making preliminary estimates about 195 pounds per capita per annum with due allowance for exceptional conditions will be approximate figures.

The proportions of rubbish vary greatly and are governed by the character of the community, the effect of private collections, and the prevailing fuel for houses, whether coal or natural gas. In the former case, where coal is used, the percentage by weight of rubbish is fairly constant, and averages from 5 per cent. to 15 per cent. of the whole collection.

When gas is used largely as fuel the proportions of rubbish are doubled. The city of Buffalo with gas as household fuel reports the collections of rubbish in volume to be equal to the volume of ashes, and this is true of most places where natural gas is plentiful.

The quantity of ashes yearly produced in any community are controlled by the character of the population, the use of solid or gaseous fuels and the cost of these. Under usual conditions when no gas is available about 73 per cent. to 75 per cent. of the total collection is house ashes. When gas is employed in households the ashes are greatly diminished in volume.

There can be no precise estimates of the relative proportions of waste in any place until all the local conditions are known, but for preliminary calculations the following proportions of refuse in a town of 8,000 population of the usual residential and manufacturing classes, where coal is used for fuel may be found of service.

Under usual conditions the amount of waste material from a northern town of 8,000 to 10,000 population is reckoned at 3 pounds per capita per day, which represents the average daily output the year round. But in actual practice it is usual to allow for an increased amount, because the quantities are always larger when means are provided for the disposal of the waste, and also to allow for the increase in population. The seasonal variation also influence the quantities. These are shown in the following table:

ESTIMATED REFUSE QUANTITIES AND PROPORTIONS IN TOWN OF 8,000 POPULATION.

Winter Quantities:		
Household ashes,	75%	11.25 tons
Garbage,	15%	2.25 "
Rubbish,	10%	1.5 "
	100%	15 "
Summer Quantities:		
Household ashes,	45%	6 to 9 tons
Garbage,	35%	5 to 7 "
Rubbish,	20%	4 to 6 "
	100%	15 to 23 "

The Means of Collection. The equipment of wagons and carts used in collection work is a subject which requires more time and space than is allowed for this paper.

Under the individual and license methods there is little attention paid to the wagons used or the means of final disposal. With a contract system in force in the hands of a competent contractor, and vigilant oversight by the health authorities the collection work can be done satisfactorily.

The regulations in force in one large city afford a good basis for working under the contract method:

"The contractor shall furnish watertight wagons or barrels, securely covered, all carts to be kept clean and lettered and numbered.

"The collectors shall call regularly at stated periods, remove and return the receptacles promptly, and in as clean a manner as possible, and shall not permit anything to be done in connection with the work that shall be needlessly offensive to persons or building.

"No deposits of garbage or other waste shall be made upon any lot or open space except by special permit, and all refuse matter shall be taken outside the city or deposited upon designated ground.

"Owners and tenants shall provide suitable receptacles for refuse that shall be securely covered and kept clean, and placed upon the curb or sidewalk or within areas or fence lines at the time of collection or one hour previous thereto.

"Penalties are provided for the infringement of the regulations upon properly investigated complaints made by the householder."

Collections by Motor Trucks. The use of motor trucks in refuse collection work will undoubtedly aid in lowering the cost and increasing the efficiency and sanitation of the service. At present they are employed in hauls from the central receiving stations in the larger cities, but not in the actual collection work, except in a few instances where considerable amounts of mixed refuse are gathered from closely built up or manufacturing sections.

Methods of Refuse Disposal. The present inquiry and purpose of this committee is intended to cover the collection of refuse, leaving the disposal work aside for future consideration. But there is one disposal method as applied to the combustible refuse or rubbish collection that is rapidly coming into use in the smaller cities and towns that promises relief from what is now a perplexing problem.

In many places when the garbage is taken by farmers for swine food, or contracted for by the city for any purpose, and where there are facilities for ground filling by clean ashes, the rubbish continues to give serious trouble. The nuisances and difficulties that arise from dumping grounds where rubbish is deposited are previously referred to in this paper and are generally well known in all communities.

In several places there are erected a special form of incinerators for the disposal of light refuse, which on occasion many also include small amounts of household garbage and bodies of the smaller animals.

These furnaces are built with large primary fire boxes with special form of fire grates, with a secondary fire, and with intercepting vertical and horizontal baffles that detain flying light particles, and becoming incandescent, assist in destroying the smoke and inflammable gases from the primary fire. They are charged through large circular openings on the top, and admit long pieces of refuse wood through the front firing doors. These designs were first used by the writer four years ago at a United States navy yard installation, and since have been adopted in many places with several now under construction.

In some of the larger New England cities where the quantities of rubbish are large, there is introduced a picking belt driven by electric power from the street mains, by which power 50 per cent. to 65 per cent. of the refuse is recovered for market. These stations are built by the towns at very moderate cost, are taken over by contractors who pay pro rata for all salable portions and who operate the station. The revenue to the city more than pays all capital charges, and provides sinking fund that defrays the initial cost of construction.

Recovery stations of this kind are in use in Cambridge, Worcester, Brookline, Somerville, Springfield, and other places are securing ground with intention of building.

These small refuse recovery stations are a modification of larger plants, operating in several cities, and within their limitations of capacity are found to be quite as efficient and useful. By their agency the problem of disposal of light combustible refuse is satisfactorily solved, at a minimum of expense, and in most cases with a profit to the community.

ADVANTAGES AND DISADVANTAGES OF DAY AND NIGHT COLLECTION OF MUNICIPAL WASTE.

WILLIAM H. EDWARDS,
New York City.

Read before the Sanitary Engineering Section of the American Public Health Association, Colorado Springs, September, 1913.

The collection of municipal wastes, ashes, and garbage, is, because of its very nature, classed as a noxious trade. Being a necessary evil attending municipal life and activity, it calls for a serious consideration, not only to improve the efficiency and economy of its performance, but also to minimize so far as possible its objectionable features. While the character of the vehicle and the methods of loading and transportation have their particular bearing on the efficiency and economy of the work done, the time of the performance also enters into these items and also has a bearing upon the comfort and well being of those served. Whether the wastes are collected separately or mixed may involve the question somewhat, but as a matter of fact this item does not in any great measure enter into an argument as to the time of day when collection shall be made, as separate or mixed the materials are offensive and liable to cause a nuisance in spite of the asserted fact that the mixture is rendered innocuous by the moisture of the swill preventing the dust nuisance of the ash. For economic reasons the receptacles in which the householder places the ashes and garbage are set outside the building, preferably in an alley, if such exists, but otherwise in front of the building and in such a manner as to interfere as little as possible with the use of the sidewalk by pedestrians. In loading it has been suggested that to avoid nuisance the receptacles should be carried away without emptying into the vehicle, but those engaged in this work have not as yet found any economical method of doing this work in this manner so as to have an efficient and inexpensive result in the carriage and dumping. We, therefore, are forced to empty the receptacles into the vehicle and there is an unsightly performance here, as well as a nuisance attending the dust spreading and unpreventable spilling which can only be minimized by covers or other devices for that purpose. Receptacles should be covered, but as to swill, these covers are frequently removed by the animals trying to get at the edible contents. Where this occurs, flies are attracted and the sun has an incubating effect on the bacterial life which the material contains. The kind of vehicle used for transportation may be a subject for study so that it may be easily loaded and emptied and not an interference with traffic.

The character of the neighborhood where the work is performed also has its effect upon the subject. We may, therefore, summarize the comparative advantages and disadvantages attendant upon this operation of this work as follows: unsightliness of cans of ashes and garbage standing in front of buildings a particular disadvantage in the daytime and much less at night, though not wholly done away with because cans are placed out for the night collections when servants are about to retire, and in the summertime especially these receptacles are from an æsthetic point of view a great annoyance. The retention of the cover on the receptacle is easier in the daytime, and, therefore, is an advantage, in that the animals do not prowl and people who find pleasure in displacing the covers do not find it convenient when they are observed. In this regard, in such cases as do occur where by carelessness or malice the covers are removed, the day work has its disadvantage in the spreading by the wind of dust from the ashes or the generation of noxious odors by the sun's effect upon the garbage. At the best the receptacle is some obstruction to the pedestrians and, therefore, is a disadvantage in the daytime and much less so at night. Where receptacles are placed within an areaway there is considerable disadvantage in night collection owing to the difficulty which the collector has of seeing whether there is material to remove or not. Complaint was made by the drivers of New York's Department of Street Cleaning that at night the animals attempting to gain food from the garbage cans attacked them and they were at a disadvantage because of the darkness. The emptying of the receptacle into the cart or truck is necessarily attended by some noise, particularly so when both the receptacle and the cart are made of metal. This disadvantage is great at night and of very little importance in the daytime. The spreading of the dust from the ash is a disadvantage because of the discomfort caused to pedestrians. In this regard the night collection has great comparative advantage. The interference with regular traffic by vehicles whose work causes them to stop and start frequently and at times to cross the street is considerable and puts the day collection at a disadvantage as against the night collection. The noise of vehicular traffic, while of no disadvantage in the daytime, becomes of considerable importance during the sleeping hours. The effect of the intense heat of the sun radiated from the pavements in the summer time is a distinct disadvantage both as to men and animals in day collection, and is completely obviated in night collection. In the winter months the weather conditions do not operate adversely comparatively either day or night, but the fact that where a horse is cast at night, because of the slippery conditions the driver has no chance to receive help as he has in the daytime in getting the animal up on his feet, is a distinct disadvantage to the night work. The spilling of materials from the vehicles is disadvantageous in day collection and is of small comparative importance in night collection as arrangement can be made for the sweeping up of the

litter before the use of the streets in the daytime makes it a nuisance. When the materials collected arrive at the dumping points there is a charge to be made as an economic disadvantage for the necessary lighting which must be particularly noted to prevent accidents. During the whole process of collection the one particular disadvantage of the night work comes from the fact that supervision of the work is made considerably more difficult than where the supervising officer has the advantage of broad daylight. I think I have covered the various items necessary to make a comparison of the advantages and disadvantages of day and night collections and, while in my balance of the one against the other so far as the city of New York is concerned, I am convinced that night collection should be chosen, I am equally certain that these considerations have to be weighed in the light of local conditions. New York, while it contains the details of about every kind of city conditions, has a combination of them which exists in no other city to such an extent, and, therefore, the importance of one or another of the items here noted does not bear a general relation to the work of other cities. In this as in most matters of municipal business we can only assist each other by relating experiences, leaving the application to individual cases to be made by the individual, and I feel that the narration alone is beneficial and I trust that in this case my rough sketch of the subject here discussed may prove of assistance to the members of this body and through them to those others who have this problem to meet.

RECOVERABLE VALUES OF MUNICIPAL WASTE.

GEORGE H. NORTON,

Deputy Engineer Commissioner, Buffalo, N. Y.

Read before the Sanitary Engineering Section of the American Public Health Association, Colorado Springs, September, 1913.

The disposal of the wastes of human activities is vital to the continuance of these activities and of the race itself. It is one of the sanitary problems which must be considered collectively with the great number, that the most beneficial effects may be attained from the available resources.

The decision of choice for disposal of refuse between immediate and complete destruction by fire and that of partial utilization of available portions must rest upon two factors: sanitary advantage of immediate destruction and commercial returns from utilization. When these two factors are known, then decision can be intelligently made between sanitary desirability and its attendant expense. If the public health can be better served by the determined extra cost of immediate destruction than by the same investment along other lines of health service the destruction must be adopted.

That in the consideration of this subject there may be available reliable data on recoverable values of certain municipal wastes, the following facts are submitted from the experience of Buffalo, N. Y.

The collections of wastes are divided into three classes:

Domestic Garbage;

Coal Ashes;

Refuse, being all other domestic wastes.

The refuse consists of paper, tin cans, bottles, old furniture and with some metal, rags, rubber, etc.

Collection is made by contract and the refuse is delivered by the contractor at the Municipal Plant situated about one mile from the center of the city. This plant was orginally constructed by a previous contractor on city property, subsequently acquired by the city, remodeled and now consists of two forty-ton Heenan-Froude furnaces, fed from storage bins by a conveyor belt. Access by teams is over an elevated roadway where wagons dump into storage bins; the refuse is drawn from their bottoms onto a conveyor belt which passes up an incline through a picking and sorting room where recoveries are made and the remaining refuse passed to the furnaces. Each furnace has a 120 H. P. water-tube boiler placed over it. The steam generated is used to operate and light the plant and to operate sewage pumps in an adjoining building. In figures here given,

REFUSE UTILIZATION PLANT, BUFFALO, N. Y.

ALL WEIGHTS IN NET TONS.

Month.	Material received.			Salable recovery.									Sent to dump.	
	No. of loads.	Cubic yards.	Weight.	Paper baled.					Rags.	Tin cans.	Total weight.	No. bottles.	Furnace residuum	Non-combustible.
				News.	Mixed.	Manilla.	Flour bags.	Charcoal bags.						
1912														
July	1,329	22,316.8	1,482.5	189.466	325.132	25.345	0.175	0.135	10.530	25.725	576.508	12,290	215.9	32.615
August	1,279	20,986.8	1,395.4	136.060	374.677	20.160	0.175	0.225	6.885	16.450	554.632	12,845	200.9	30.698
September	1,129	21,161.3	1,407.0	162.193	339.137	23.810	.....	.....	7.025	8.750	540.915	12,005	207.2	30.954
October	1,300	25,924.4	1,723.7	206.490	364.136	27.040	0.435	0.282	7.275	16.500	622.159	13,060	263.3	37.921
November	951	18,936.9	1,259.1	158.062	287.435	24.282	0.357	0.255	5.772	18.900	495.064	19,366	181.7	27.700
December	1,100	21,182.3	1,408.4	155.823	290.367	27.282	0.400	0.190	6.185	33.050	513.298	18,371	214.0	30.984
1913														
January	1,256	24,969.4	1,660.2	181.579	321.897	28.025	0.455	0.410	7.592	35.300	275.259	17,381	259.9	36.524
February	1,095	18,628.5	1,238.6	135.324	249.102	26.277	0.465	0.350	5.760	34.500	451.689	14,019	188.2	27.249
March	1,164	22,538.9	1,498.6	147.840	325.897	28.942	.....	.....	5.907	53.950	562.037	12,150	224.4	32.969
April	1,272	28,363.9	1,885.9	178.335	401.937	28.407	0.490	0.277	6.490	45.050	660.987	21,143	293.2	41.487
May	1,612	34,613.6	2,301.4	264.645	460.617	40.972	.....	.....	6.040	35.925	808.200	10,925	359.3	50.630
June	1,486	39,883.4	1,986.9	226.350	400.890	28.310	.....	.....	3.810	32.050	659.360	23,830	318.0	43.711
	14,973	289,506.2	19,247.7	2,142.167	4,141.134	328.852	2.952	2.124	79.271	325.650	7,020.108	194,385	2,927.0	423.444

credit is given the refuse plant at 70 cents per hour for steam furnished the sewage pumping plant. Pickers or assorters are stationed on each side of the elevated belt, each recovering some designated material. Waste paper is assorted into various grades, depending on market demands, thrown into iron bins and on the floor below is pressed into bales. Tin cans are placed in storage bin and thence spouted into cars. The ash, clinker and non-combustible material is hauled to dumps.

Since July 1, 1912, all delivery to plant is weighed and record made of cubic contents of wagons. The table shows the records by months for the year July 1, 1912, to June 30, 1913, as taken from monthly statements and may vary slightly from official consolidations when made.

From this the following deductions are drawn:

Average load of refuse, cubic yards	19.3
Average weight of load, tons	1.29
Average weight per cubic yard, tons	0.066
Average refuse per year, per inhabitant (445,000 population), tons	0.043
Per cent. of total weight recovered	37.0%
Per cent. of total weight, non-combustible	2.2%
Per cent. of total weight, furnace residium	15.5%
Per cent. of total weight burned in furnace	45.3%
Sale value per ton refuse received, exclusive of steam value	$2.12
Sale value per ton refuse received, inclusive of steam value	$2.36
Labor cost per ton refuse received	$1.78
Labor cost per ton refuse recovered	$4.80

In the above, weight of bottles at one pound each has been added to recovered weights and $1,000 added to pay roll for proportion of superintendent's salary.

During this year reconstruction and re-arrangement of the plant have been under way and a part of the labor charge might well have been charged to construction account. For one week the plant was shut down for such alterations. It should also be stated that the plant is practically complete for the incineration of garbage with the refuse, entailing extra construction costs.

FINANCIAL SUMMARY.

Sale of recoveries	$40,877.29	
Steam sold	4,565.58	
		$45,442.87
TOTAL RECEIPTS.		
Pay rolls	$33,160.85	
Part salary of superintendent	1,000.00	
Maintenance and repairing	3,523.07	
Residium to dumps	1,872.00	
Operating expenses		$39,555.92
Net profit from operation		$5,886.95

No computation is here made of charges for interest, depreciation and insurance, but the same may be inferred from the following:

Valuation of plant	$135,000.00	
Valuation of land	25,000.00	
Total valuation		$160,000.00

Not all of the available steam is utilized.

From the above it may be seen that disposal of refuse, with recovery of materials of value, may be made without material cost near the center of a large city, thus saving the cost of extra haulage to unsightly dumps. Disposal by complete combustion could not thus be made unless arrangements for sale of steam in irregular supply were of an unusually favorable nature.

This is done without nuisance and without material complaints of injurious effects upon the health of those engaged in this work. This subject of effect upon health may well be the subject of further detailed investigation.

COST OF INCINERATION.

P. M. Hall,
Minneapolis, Minn.

Read before the Sanitary Engineering Section of the American Public Health Association, Colorado Springs, September, 1913.

At the meeting of the American Public Health Association held in Richmond in 1909, the subject of my paper was "Utilization in Connection with Incineration." In the course of the paper it was predicted that we would be doing street lighting and furnishing electric power for general purposes. Minneapolis has since developed the plan as outlined at that time and something of the process of evolution may be of interest.

Beginning in 1908 the incinerator furnished sufficient power to generate electricity for the lighting of Hopewell Hospital and the workhouse buildings. Later in the same year the heating of the same buildings was taken over. This service has continued up to the present time. In May, 1912, we began the systematic lighting of public streets.

At first this light was extended to include twenty-two miles of the city's streets. This has been gradually extended until now the street lighting includes thirty-one miles of streets.

At the time the crematory began to do street lighting, the city was paying to the Minneapolis General Electric company $70 per arc light per year. The crematory furnished the service from the start for $60. As a result of this competition, the rates of the General Electric were cut first to $65 and since to $62.50.

Herewith is submitted the figures of the cost of operation of the plant, and the receipts, for the year 1912:

CREMATORY, 1912.

Payroll		$16,302.10
Water		142.89
Wood (146 cords)		401.50
Coal in incinerators		3,621.93
Coal in high pressure boilers		5,243.73
Insurance		502.50
Supplies		2,647.86
Total Expense		$28,862.51
Revenue from B. of C. & C. Heat,	$6293.89	
Revenue from B. of C. & C. Light,	1080.62	
Revenue from Street Lights,	4657.48	12,031.99
Net Expense		$16,830.52

Total number of tanks burned, 13,496, making an average cost per tank of $1.25.

We only had 150 arcs on for 5 months and 200 on for 6 months in 1912, which cut present revenue more than half. There is an additional revenue which should be credited to this department of $500, as the city is paying $62.50, and has been paying $65 until lately, while we are furnishing it for $60.

It will be noted that the service of street lighting covered a period of only six months, and of 150 arcs for that time. At the present time the city is maintaining 212 arcs, at the same rate of $60 per year. This will give for the year 1913 a revenue of $12,720, an increase over the revenue from the same source for the year 1912 of over $8,000, estimating that the revenues for heating and lighting the group of workhouse buildings and the tuberculosis hospitals will be approximately the same this year as last. The revenues for 1913 should be a trifle over $20,000, an increase of $8,000 over the total revenues for 1912. Providing the cost of operation is not materially different, the net expense should be cut in two for the year 1913.

The city at the present time is putting in an additional incinerator and boiler and when completed the service of street lighting will be still further extended.

These figures give simply the net saving to the city from the operation of the incinerator. The service of electric lighting done by the garbage incinerator should in justice be credited with the saving to the city through the reduction of the rates of the general electric company. This alone runs into many thousand dollars. The cost of producing the arc light has been about $46 per year, so that if necessary the cost to the city could be reduced to $50 and still be a paying investment.

REPORT OF COMMITTEE ON REFUSE COLLECTION AND DISPOSAL.

Read before the Sanitary Engineering Section, American Public Health Association, Colorado Springs, September, 1913.

The chief work of the Committee on Refuse Collection and Disposal during the past year has been to make a preliminary trial of a proposed "Standard Form for Statistics of Municipal Refuse." This standard form was prepared by the chairman and was published in the AMERICAN JOURNAL OF PUBLIC HEALTH (Vol. 2, No. 6). The method of making the preliminary trial was determined after a meeting of the committee in New York. At this meeting subjects for a topical discussion at the convention were discussed and a program adopted. Col. William F. Morse undertook to prepare a paper on "Refuse Collection" to be presented at the conven ion.

In order to give the standard form for statistics a trial, seventy-five copies were sent out to the proper officials in the larger cities of the United States.

These cities were chosen because some member of the committee had a personal association with the official in charge. In each instance personal letters accompanied the copy of the standard form. These letters explained the nature and purpose of the standard form and requested that the form be filled out and returned to the chairman of the committee. Of the seventy-five cities to which copies were sent out, eight (10.6 per cent.) replied. Of these eight, only five returned the standard form made out as requested. These five cities were Washington, D. C., New York, N. Y., Chicago, Ill., Milwaukee, Wis., and Salem, Mass. Of the five forms received from these cities, two were incomplete, so that, out of seventy-five copies of the standard form sent out with personal letters, 6.7 per cent. made complete returns.

The city of Boston sent a copy of the sanitary service records from their annual report, which give very complete data of the refuse collection and disposal, but not in a form directly comparable with other cities. The city of Albany submitted a copy of a special report on refuse collection and disposal, which did not give current data as called for by the standard form. Mr. E. R. Conant, city engineer, Savannah, Ga., sent a very comprehensive letter, stating that no regular records of refuse disposal were kept and that he had collected as much information as possible during the short time he had been in office. This information was given in his letter. His attitude is expressed by the following sentence from his letter: "I am very much interested in your effort to have better data concerning the collection and disposal of municipal refuse, and, with the construction and operation of our incinerating plant, I shall take pleasure in carefully

compiling such data that will comply with the standard form which the American Public Health Association is preparing."

The city engineer of Rochester wrote that he was going to send in the Rochester data, but it has not come in time to be included in this report.

The data from the standard forms received has been summarized in the accompanying tables and notes. It is, of course, disappointing that more cities did not reply to our request. Nevertheless, the data as collected is full of value and interest, and in our judgment warrants a further trial of the form during the coming year, when possibly a second appeal will secure more results than the first.

Respectfully submitted,

SAMUEL A. GREELEY, *Chairman,*
WILLIAM F. MORSE,
JOHN H. GREGORY,
R. H. THOMPSON,
Committee on Refuse Collection and Disposal.

SUMMARY OF DATA.

1912.

A. STATISTICS OF REFUSE.

Unit Quantities.

City.	Population.	Garbage.		Ashes.		Rubbish.	
		Pounds per Capita per Year.	Pounds per 1,000 Population per Day.	Pounds per capita per Year.	Pounds per 1,000 Population per Day.	Pounds per Capita per Year.	Pounds per 1,000 Population per Day.
New York	4,743,773	144	393	1,162	3,175	89	244
Chicago	2,307,638	103	331				
Boston	686,000	204	656	975	3,120	24	77
Milwaukee	392,381	181	497				
Washington	331,069	273	876	825	2,640	58	187
Salem	45,000	267	733				

Average Weights per Cubic Yard.

City.	Garbage.	Ashes.	Rubbish.
New York	1,100	1,100	133
Chicago	1,250	1,125	
Boston	1,350	943	259
Washington	1,150	1,200	171

Mechanical Analyses—Percentage by Weight.

City.	Glass.	Bones.	Paper.	Rags.	Metals.	Straw and Wood.	Dust.	Ashes.	Garbage.
Chicago :									
Ashes and rubbish	1.9	0.5	21.7		3.7	9.0	14.4	32.6	16.2
Washington :									
Ashes . . .	3.0	1.0	9.0	3.0	7.0	2.0	8.0		
Rubbish.			96.0	2.0	1.0				

Chemical Analyses, Washington, D. C.

Ashes contain 61 per cent. carbon and 6 per cent. water. Garbage contains 3.75 per cent. of grease and 15 per cent. of tankage.

B. STATISTICS OF HOUSE TREATMENT.

New York.

Size of house can?	Maximum three cubic feet (22.5 gals.).
Type of house can?	Metal.
Number of cans?	At least two.
Location of can?	Inside premises.
Is can set out for collector?	Yes.
Number of separations?	Three.
Is the garbage drained or wrapped in paper?	Neither.

Chicago.

Size of house can?	Five to ten gallons.
Type of house can?	Metal with metal cover.
Number of cans?	One for each house, flat or tenement flat.
Location of can?	Rear end of lot or in alley.
Is can set out for collector?	Yes.
Number of separations?	Two.
Is garbage drained or wrapped in paper?	No.

Milwaukee.

Size of house can?	Average ten gallons.
Type of house can?	Galvanized iron.
Number of cans?	One for each family.
Location of can?	In rear of yard as near alley as possible.
Is can set out for collector?	No.
Number of separations?	—
Is garbage drained or wrapped in paper?	Wrapped in paper (generally).

Washington.

Size of can?	Garbage three 10-gallons; ashes, ten 24-gallons; miscellaneous refuse, a suitable receptacle which can be easily handled by one man.
Type of house can?	Metal, water-tight with cover.

Number of cans?	Two, one for garbage and one for ashes.
Location of can?	At alley gate or in front area way.
Is can set out for collector?	Householder is required to open gate or door and to have refuse at the opening.
Number of separations?	Three.
Is garbage drained or wrapped?	Is drained but not wrapped.

C. STATISTICS OF COLLECTION.

Is collection done by city or by contract?

New York—by city.
Chicago—by city.
Boston—by city and contract.
Milwaukee—by city.
Washington—by contract.
Salem—by city.

Does the city own the stables and equipment?
New York is the only city that answers yes.

Number of Collections per Week.

City.	Summer			Winter		
	Business.	Residential.	Outlying.	Business.	Residential.	Outlying.
New York:						
Garbage	6	6	2	6	6	2
Ashes	6	6	1	6	6	1
Chicago:						
Garbage	6	3	2	6	3	1
Ashes	6	3	2	6	2	1
Milwaukee:						
Garbage	3	1	1	3	Every 10 days.	
Ashes		Monthly			Monthly	
Washington:						
Garbage	6	6	3	6	3	2
Ashes	None	1	1	None	2	1

Type of Collection Wagons Used.

City.	Garbage.	Ashes.	Rubbish.
New York:			
Capacity, cu. yds.	1.5	1.5	7.5
Material	Steel	Steel	Wood
Number of Horses	1	1	1
Attendants per wagon	1	1	1
Covered	With canvas		None
Maker	Sing Sing prison		
Cost	$123	$123	$123

Type of Collection Wagons Used.—Continued.

City.	Garbage.	Ashes.	Rubbish.
Chicago:			
Capacity, cu. yds.	4.0	5.0	5.0
Material	Iron	Wood	Wood
Number of horses	2	2	2
Attendants per wagon	2	1	1
How dumped	Derrick	Hand	Hand
Covered	Iron	Canvas	Canvas
Cost	$225	$172	$72
Milwaukee:			
Capacity, cu. yds.	2.0	3.0	3.0
Material	Iron	Wood	Wood
Number of horses	1	2	2
Attendants per wagon	1	1	1
How dumped	Crane	Hand	Hand
Covered	Yes	No	No
Cost	$60		
Washington:			
Capacity, cu. yds.	2.0	3.0–4.0–5.0	8.0
Material	Steel	Wood	Wood
Number of horses	1	2	1
Attendants per wagon	1 or 2	2	1
How dumped	Removable Bodies	Bottom	Material lifted out.
Covered	Steel covers	Canvas	Canvas
Cost	$150	$140–$185	$125

Boston.—Capacity of wagons used: Single ash carts—63 cubic feet. Double ash carts—145 cubic feet. Paper carts—167 cubic feet. Paper wagons—288 cubic feet. Single garbage wagons—54 cubic feet. Double garbage wagons—81 cubic feet.

Frequency of washing wagons?

New York—Daily. Chicago—Weekly. Milwaukee—Daily. Washington—Daily. Salem—Daily.

Number of Wagons in Service.

	Summer.			Winter.		
	Garbage.	Ashes.	Rubbish.	Garbage.	Ashes.	Rubbish.
New York	Average number of wagons in service, 1469.					
Chicago	205	340		150	550	
Milwaukee	106	26		90	125	
Washington	85	30	30	65	75	30

Cost of Collection per Ton.

City.	Garbage.	Ashes.	Rubbish.
New York	$0.97	$0.73	$2.46
*Chicago	3.94	0.639	per cu. yard
Boston	2.99	1.34	$2.71
*Milwaukee	2.47	0.78	per cu. yard
Washington (includes disposal)	1.04	0.60	$1.71

*Ashes and rubbish collected together.

D. STATISTICS OF DISPOSAL.

Methods of Disposal.

City.	Garbage.	Ashes.	Rubbish.
New York	Reduction	Dumped	Dumped after picking
Chicago	Reduction	Dumped	Dumped
Boston	Reduction	Dumped	Dumped
Milwaukee	Incineration	Dumped and incinerated	
Washington	Reduction	Dumped	Incineration, dumping and sorting
Salem	Fed to pigs	Dumped	Dumped

Sanitary Aspects of Disposal.

New York City. The cost of disposal of ashes and rubbish is given as thirty-four cents per ton. The reduction plant, located on Barren Island, is an Arnold process type of plant and handled 345,900 tons in 1912.

Milwaukee. Ashes and rubbish are dumped on about twenty dumps throughout the city. The main dumps are constantly leveled. The cost of disposal is given as seventy-eight cents per cubic yard, which apparently includes the collection. At the incinerator, which is of 300 tons daily capacity, fifty-seven men are employed. The gross cost per ton is $1.17 per ton. The plant cost $210,000. Steam generated is "being harnessed to run power plant." Clinker is dumped.

Washington. The area of available dumping grounds is practically unlimited. Public dumps have care takers. The reduction plant is located at Cherry Hill, Va., and utilizes the Chamberlain process. The quantity reduced in 1912 was 48,214 tons. The force employed varies from seventy-five men in summer to sixty men in winter. The gross cost of operation is estimated to be $2.31 per ton and the revenue per ton is

estimated to be $4.20. There is one plant for burning rubbish with a capacity of 450 cubic yards. The location is 26th and Bemings Avenues, Washington. The plant consists of a furnace and picking conveyor. Thirty men are employed and seventy-five women. The plant cost $40,000. The gross cost of operation is estimated at $3.09 per ton, and the revenue at $4.28 per ton.

Salem. The garbage contract is let for a period of five years for a lump sum of $12,500 at the piggery. One hundred and fifty pigs are kept in the summer and 200 in winter.

E. MISCELLANEOUS STATISTICS.

Disposal of Manure.

New York City. Manure is kept in pits at the stables. It is removed by contract and sold to farmers. There are loading stations in the city used for all classes of refuse.

Chicago. Manure is kept in boxes or vaults. It is removed privately and shipped out of city by steam roads. There are two loading stations in the city for transferring garbage boxes from wagons to barges, and two for loading rubbish and street dirt from wagons to cars.

Milwaukee. The manure is kept in boxes. It is removed and disposed of privately. The steam railroads maintain a car in the city for the removal of manure.

Washington. The manure is kept in pits and is removed privately, generally for fertilizing. There is a transfer station in the city for garbage.

Salem. Manure is kept in a bin at the stable and is sold to a farmer in Danvers. There is a loading station in the city for garbage.

American Journal of Public Health

Official Organ of the American Public Health Association
Published Monthly by the American Public Health Association.

VOLUME IV.—Old Series Vol. X. JULY, 1914. Number 7

$3.00 a year. 30 cents a copy.

SELSKAR M. GUNN, Editor.
FRANK H. CANADAY, Business Manager.

Editorial Assistants

DR. MARK W. BOYD, EDWARD A. INGHAM A. P. STURTEVANT.

Board of Advisory Editors

DR. PETER H. BRYCE, Ottawa, Canada. DR. LIVINGSTON FARRAND, Boulder, Colorado.
DR. CHARLES V. CHAPIN, Providence, R. I. PROF. GEORGE C. WHIPPLE, Cambridge, Mass.
DR. WILLIAM C. WOODWARD, Washington, D. C.

All expressions of opinions and all statements of supposed facts are published on the authority of the writer over whose signature they appear and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

American Public Health Association

The United States of America
The Dominion of Canada The Republic of Mexico The Republic of Cuba

Officers 1913-1914

President, Dr. William C. Woodward, Washington, D. C.
First Vice-President, Dr. John F. Anderson, Washington, D. C.
Second Vice-President, Dr. M. Lebredo, Havana, Cuba.
Third Vice-President, Dr. C. J. Hastings, Toronto, Canada
Secretary, Professor S. M. Gunn, 755 Boylston St., Boston, Mass
Treasurer, Dr. Lee K. Frankel, New York City

Section Officers

Laboratory
Chairman, Prof. Edward Bartow, Urbana, Ill.
Vice-Chairman, C.-E. A. Winslow, New York City.
Secretary, Dr. D. L. Harris, St. Louis, Mo.
Recorder, Dr. A. Freeman, Richmond, Va.

Vital Statistics
Chairman, Prof. W. F. Wilcox, Ithaca, N. Y.
Vice-Chairman, Dr. E. Liceaga, Mexico City.
Secretary, Dr. Louis I. Dublin, New York City.

Public Health Officials
Chairman, Dr. C. V. Chapin, Providence, R. I.
Vice-Chairman, Dr. C. J. Hasting, Toronto, Canada.
Secretary, Dr. E. C. Levy, Richmond, Va.
Recorder, Dr. A. S. Fell, Trenton, N. J.

Sanitary Engineering
Chairman, Prof. R. S. Weston, Boston, Mass.
Vice-Chairman, Mr. George W. Fuller, New York City.
Secretary, Dr. H. D. Pease, New York City.

Sociological
Chairman, Mr. Lawrence Veiller, New York City.
Vice-Chairman, Dr. H. E. Dearholt, Milwaukee, Wis.
Secretary, Mr. S. Poulterer Morris, Denver, Col.

SANITATION AND POLITICAL ECONOMY.

The greatest asset of the modern public health movement is public confidence. Almost all enterprises looking toward public benefit have clinging to them features of more or less dubious wisdom or promise, but the promotion of the public health is acknowledged to be so pressing and so important that to it are cheerfully given extraordinary prominence and support. There are some signs in the sky, however, that this attitude of cheerful acquiescence in and ready submission to the mere dictates of sanitarians will not be continued indefinitely, but that cause must be shown for sanitary ordinances, expenditures and improvements. The famous "dip tank" decision of the Massachusetts courts, and the general insistence everywhere on "the rule of reason," are straws showing which way the wind is blowing.

But if public confidence is the best asset of sanitation, then it should be jealously guarded lest it be abused or weakened. It may be damaged, for example, by the extravagant claims of enthusiasts—as for example in hold-

ing out the hope that tuberculosis may actually soon disappear—or by the activity of pure food apostles who place food purity at the head of the list of all sanitary endeavors.

Politics mixed with sanitation makes an especially dangerous compound, though sanitation has often been used as a highly effective political club. Just now it seems to be political economy which is seeking a partnership with sanitation, but according to a recent author this seems likely to prove sometimes merely another cloak to cover up things which, without the magic name of Sanitation, would not be tolerated. In particular, the benefits of improved housing and the cheapening and bettering of food supplies under state and municipal supervision have many ardent advocates. On the other hand, a severe critic of these associations of politics and sanitation may often find much to say, as does for example, Mr. Ives Guyot, an eminent French political economist whose recent book entitled "Where and Why Public Ownership Has Failed" (Macmillan) contains some chapters of lively interest for sanitarians, on the Housing of the Working Classes in Great Britain, and on the Continent, under public ownership, and on Government Control of Food Supplies. Space forbids a review of this distinctly partisan and possibly prejudiced criticism of much that ordinarily passes as excellent public health service. Those, however, who like to know both sides of an important subject or to look before they leap, will not fail to make a note of this critical volume.

PLACE OF THE ENGINEER IN PUBLIC HEALTH.

That the place of the engineer in health work is widening has new and striking evidence in the selection of a man with a B. S. from a technical college for director of the Children's Hospital in Philadelphia.

Just as it was formerly the custom to select a minister for the president of a College, so it was the rule to place a physician at the head of everything that bore the name of health. Such a man was over every health department, looked after the manifold utilities of kindred nature, suggested better sanitary methods and cared for the vital statistics. Today the up-to-date college looks for some cultured man skilled in business for its head. In a comparable way the sanitary engineer is chosen to high places in health work. He is a man who first of all is an engineer and competent to take up the engineering side of sanitation, but at the same time broad enough to have gained some knowledge of medical principles.

There are certain good reasons for the evolution, for health work no longer stands on the basis of medicine alone. Light, ventilation and humidity come into the problems of health; construction is most important, and in these matters the value of the engineer is obvious. Health administration never can be independent of medical skill and practice—medicine and engineering must go hand in hand.

Coöperation of all possible resources, medical and non-medical, is what counts in preventing unnecessary sickness and premature death. It is worth striving for!

SECURING FUNDS FOR PUBLIC HEALTH WORK.

LAWRENCE VEILLER,

Secretary National Housing Association.

Read before the Sociological Section, American Public Health Association, Colorado Springs, September, 1913.

Is it really impossible to get from the public treasury sufficient funds for public health work?

If this question were put to vote among the health officers of the country the answer would undoubtedly be unanimously in the affirmative.

If we should further attempt in true scientific manner to reach a conclusion, based on a careful and dispassionate analysis of the appropriations made to the various health departments throughout the country, we should unquestionably be driven to a similar inference.

No one, we imagine, could escape this conclusion after studying carefully the records; after seeing health officer after health officer certify to the needs of his department, setting forth clearly and explicitly what the interests of the community require, and the consequences of failure to meet these community needs, and then finding how totally inadequate an appropriation has been made by the public authorities.

And yet, I am going to venture, though a mere layman, to point out that this seemingly impossible result can be obtained, if the right methods are pursued. I happen to know that this can be done, because we have done it—not once, but many times.

Like most other things it depends on using the right methods. Nothing is impossible, if you know how. The most impregnable fortress will yield to the besiegers, if the right instruments of warfare are brought to bear.

As illustrative of what can be accomplished in this direction, some work done by the writer of this paper four years ago in New York City may prove suggestive and possibly helpful to health officers and to social workers in other cities.

In my capacity as chief executive officer of the Committee on the Prevention of Tuberculosis of the Charity Organization Society, the body of private citizens that is carrying the responsibility for the fight against the great white plague in New York City, I reached the conclusion that it was about time that we took account of stock; that we try to reach some determination as to how far our efforts were accomplishing the ends for which we had been working.

Our committee had at that time been actively at work for some eight years, as we were practically the first group of people in the United States,

outside of the health authorities, to take up the prevention of tuberculosis in an organized way. At the very inception of our work we had enunciated the principle that we, as private citizens, ought not to undertake functions which it properly belonged to the public authorities to perform, but that it should be our task to see that the public authorities performed these functions, and that they were given the means with which to do it. For instance, we felt it no part of our business to build and operate hospitals for advanced or incipient cases, to run tuberculosis dispensaries, to disinfect infected domiciles, or to exercise control over the consumptive poor in their homes; these things it was the business of the city to do. But we felt it to be very much our business to see that these things were done; it was our function to promote the organization and maintenance by the city of adequate tuberculosis hospitals and clinics, to see that the city required the prompt and frequent disinfection of infected houses and apartments, and to see that the board of health exercised adequate control over the consumptive poor in their homes.

Although the committee had at that time been carrying on an active educational campaign for some seven years and the board of health had never been so active in its anti-tuberculosis work, yet the death-rate remained practically stationary during that period, in rather striking contrast to a very decided decrease in the years prior to the inception of these various movements. It seemed an especially opportune time, therefore, all things considered, to see where we were heading.

Accordingly, we had a talk with the heads of the health department, including the chief of the bureau affected, and explained that we desired to make a *sympathetic* study of the tuberculosis work of the department.

Permission was readily granted. In fact, we were welcomed with open arms. All records were thrown open to us.

Then we began to study at first hand the system of the department. The plan of operation was explained to us in detail by the chief of bureau, until we had completely grasped the mechanism that was being used, and were able to operate it ourselves.

The department at that time, as it does today and has always done, led the country in its methods of anti-tuberculosis work. It had an excellent system but much of it was on paper. Through years of effort, registration of tuberculous cases had been perfected and an impressive card catalogue met our eyes. That catalogue would have been all right, if we hadn't been so impertinent as to *study* it!

It was an effective sight, as a passing impression, but alas, it couldn't stand very searching analysis. It was all right until we commenced to ask questions. Looking through the cards casually we came upon the record of the case of one Annie S———, who was supposed to be living in an East Side tenement house, and had been reported to the department as

having tuberculosis on November 9, 1903, some six years previous. With a glow of pride we noted how promptly the department had acted. Quickly and with despatch on November 12, two days later, an emissary from the department, nurse or doctor, had visited the case.

Then our pride had a fall. The patient happened to be out when the nurse called, certain facts about her were obtained from neighbors and relatives and placed upon the records, but the patient was not seen.

Glancing down the record we assumed that we should soon come upon the record of a subsequent visit made, perhaps a week later, when the patient was at home and when first-hand information would be obtained, and instructive advice given to the patient. But alas, the records showed that no subsequent visit had ever been made. Our first thought naturally was that this was an exceptional case, that through some oversight the card had been misplaced, and the system thrown out of gear. But further study showed that the catalogue was *full* of cases like that of Annie S———; that there were literally hundreds of cases that had been visited but once in several years.

More detailed study soon disclosed the fact that this had practically become the rule, that all cases were visited once when originally reported to the department, and then, except in special cases, were never seen again. No one knew what the present condition of the patient might be. So far as the department was concerned, she might have gone on for years infecting her family and those around her.

By this time we were naturally beginning to ask ourselves, "what was the value of requiring physicians to report cases, if, after they were reported, nothing more than this happened?" Our disillusionment had begun.

Our next serious shock was when we came upon a separate file of 20,000 "Not Found Cases"—cases which had once been reported as having consumption but who could not be found at the address given. The thought of 20,000 "lost" consumptives wandering around the city, spreading the disease wherever they went, was not a cheerful one to contemplate.

Then we proceeded to study the important question of house infection. Here we felt sure we were on safe ground. The department ten years before had made a series of most impressive and valuable maps showing the recurrence of tuberculosis in certain houses, and we felt confident we should find the most complete data on this phase of the problem.

Notwithstanding this, I must frankly admit that we approached the question of the disinfection of apartments formerly occupied by consumptives, with some trepidation. But as we read the "sanitary code" our hopes rose, for there we found it plainly set forth that whenever a person suffering from tuberculosis moved from an apartment, it was incumbent on the landlord to notify the health department of this fact and to thoroughly renovate and disinfect the apartment.

Alas! this too was on paper. When we came to insert our inquisitive probe, we found that this section of the code was "not enforced"; that no attempt was made to force landlords to comply with this requirement; that the department required disinfection or renovation only in cases where the patient *died* in his tenement home and that in the thousands of other cases, where sick consumptives moved from one house to another, nothing was done about it. A new family might move into the infected rooms, entirely ignorant of the fact that the rooms had just been vacated by a consumptive and that they were infected with the germs of that dread disease.

Our disillusionment was now complete. We now understood fully why the tuberculosis death-rate had stayed practically stationary during the past seven years.

A situation both unanticipated and serious had been disclosed by our two weeks' study. Vitally important measures which the city was supposed to be taking, and which it was most necessary should be taken, were found to be left undone. It was found that thousands of the consumptive poor of the city remained unsupervised and untaught in their tenement homes, spreading the disease throughout the community; and that thousands of these homes had become permanent centers of infection because of the absence of proper disinfection. It was found that there were over 44,000 consumptives in the city and that over 28,000 of these were unsupervised, under the care neither of private physician, nor of hospital or clinic; that over 20,000 consumptives whose whereabouts were at one time known to the department, were now adrift and could not be found, each one a potential source of danger to the community. It was found that houses occupied by consumptives were vacated; then occupied anew by other families who in their turn became infected and succumbed to the disease, and that no effort was being made by the city to prevent this.

The reasons for the conditions discovered were not far to seek. They resolved themselves in each case into one brief and cogent expression—"lack of funds." The things which had been left undone that ought to have been done, were not done simply because there were not funds enough to make it possible to do them. The department had literally been trying to lift itself by its bootstraps. It had been attempting to supervise 28,000 consumptives in their homes with but eight visiting nurses!

Not having to contend with an inert department or with officials who had failed to grasp the problem with which they were wrestling, greatly clarified the situation. We faced merely the fact that the department had not in the past been given enough money to enable it to do its work properly, and that, until it did receive a more adequate appropriation the city could not expect to reduce the death-rate from tuberculosis nor make much further progress in controlling this disease. This greatly simplified our task.

Our next step was to elaborate a plan for the proper control of tuberculosis by the health department, with a careful estimate of the increased staff necessary to carry out this plan. This was done and submitted to the health commissioner and his aides, who approved it and, at our suggestion, made it the basis of a request to the financial authorities for funds to be granted in the budget for the following year's appropriation. It represented an annual increase of over a quarter of a million dollars ($263,500).

We then said to the health commissioner, "We are going to get you this money." For we knew that we, as private citizens, could campaign for it, where he as a public official, and part of the administration, was by his very position debarred from doing the things necessary to bring about this much desired result.

I don't think I shall ever forget the expression with which the head of the bureau affected, who for years past had been unsuccessfully trying to get small increases for the tuberculosis work of the department, greeted my statement that we intended to get him an increase of a quarter of a million dollars annually for his work. It was not what he said, but what he looked. Such an expression of condescending toleration I don't think I have ever quite seen—a thinly veiled amusement at the youthful enthusiasm that could venture on so wild a quest, with a calm certainty that the ambitious and fervent "reformer" would emerge from the experience very much as Don Quixote had emerged from his encounter with the windmills—a sadder and a wiser man! And, that so far as the department appropriation was concerned, the result would be what it had always been—the great needs of the department would be set forth but the appropriation would remain the same!

I spoke earlier in this paper of the importance of right methods as a factor in achieving success.

At this point, one false step would have been fatal. Had we been like some "reformers" and cared more for publicity and for getting the credit than for achieving results, we should have jeopardized the whole future of the tuberculosis movement in New York, through premature publicity—the graveyard of so many social movements!

We had to tread most carefully. We had just disclosed grave defects in the administration of the health department, which if not presented with sufficient care would have reflected seriously on the administration. Yet these defects of administration were the most potent weapon that could have been forged for our purpose. Rightly applied they were the lever that would pry open the lid of the city strong-box and give us the money so urgently needed.

Our task, therefore, was to persuade the head of the health department that instead of keeping silent about the defects of administration disclosed, he should permit us to give the widest publicity to our discoveries, and that

he himself should frankly admit these serious evils, but that, while deploring them, he should always point out that they were due to one cause—lack of funds. As the man at the head of the department was a big man, and had vision, it was not difficult to bring this about.

We then undertook a far-reaching campaign to secure from the Board of Estimate and Apportionment the increase in the department's appropriation of a quarter of a million dollars.

Every detail of the campaign was carefully mapped out; public sentiment was stimulated through newspaper editorials and discussions; personal interviews were had by members of the committee and by numerous friends of the society with the members of the Board of Estimate, urging that the full appropriation be made. Public meetings were held where the whole situation was made plain.

The most potent weapon in our fight, however, was a twelve page pamphlet, entitled "Tuberculosis Needs and the City Budget—Why the Health Department Needs More Money for Tuberculosis," copiously illustrated with full page photographs. In this we did not mince matters. The facts were handled without gloves, and were set forth in good newspaper English, in a way that not only compelled the reader's attention, but held it, like a "best-seller"; if he once took it up he couldn't put it down until he had finished it. And yet this was done without sensationalism and without exaggeration or overstatement. I wish I could embody that pamphlet in this paper, but I have some regard for the feelings of my auditors.

Some of the headings may, however, give some conception of the methods employed. I cite a few: "The Present Situation; Consumptives in the Tenements; 20,000 Consumptives whose Whereabouts Are Unknown; Thousands of Children Infected; Lack of Hospital Accommodations; The Obstacles to Progress; How the Situation Is to Be Met; and What Will be Done with the Money." We closed with a direct personal appeal as follows:

"How You Can Help."

"This situation vitally concerns you. It affects every citizen of New York. Tuberculosis is not limited to the poor. The danger from the careless consumptive affects every citizen. No one is immune. The prevention of this disease concerns the entire city. The public officials have set forth the needs of their department. They stand ready to do their part to stamp out the disease. They can, however, make but little progress unless they have the support of all citizens.

"If you believe that the money asked for, for this tuberculosis work, should be granted, we would ask you to write now to the members of the Board of Estimate whose names and addresses are given in this pamphlet, stating briefly your views and urging them to vote for the items in the

various appropriations mentioned on the following page; also to get as many of your friends as possible to write similar letters."

Appended to this pamphlet was a list of the members of that Board with their addresses, and a summary of the items in the various appropriations for which support was asked.

At the appropriate time, when the Board of Estimate was considering the departmental estimates, five thousand letters with this pamphlet were sent out to prominent citizens, asking their support. As a result, the members of the Board of Estimate were deluged with letters from some of the most important people in the city.

But valuable as this campaign of letter-writing was, it would not do to stop there. Our next step was to request a public hearing before the Board of Estimate. That hearing was most carefully organized. Fourteen speakers appeared to urge the appropriation. They comprised the very greatest physicians and authorities on tuberculosis in the city. Joined with them were representatives of organized labor, the Catholic church and other important social agencies. To each speaker was assigned a single point to make, but one phase of the subject to discuss, and no speaker was allowed to speak for more than three minutes. It has since been said by one of New York's least easily satisfied reformers that he had never seen so well organized a public hearing.

Satisfactory as the public impression created by this demonstration was, we did not stop there. We searched out the individual members of the Board of Estimate once more and found out who was for us and who against us. Only one member remained opposed to granting the full appropriation. But he was the most important member of the board. We labored with him night and day; we brought political and social influence to bear, and finally he yielded.

Our fight was won; we had secured the full appropriation that we had asked for. And the health department's fund for tuberculosis work was increased by $263,500, at one step! As this was an *annual* increase, it, of course, would continue to be made to be in subsequent years. (It has been made every year in the four years that have since elapsed.) It was equivalent, therefore, in its practical effect to the granting of a fund of five million dollars, the income of which was to be devoted to the prevention of tuberculosis.

These results fraught with so much importance to the city and to countless thousands of its sick poor were achieved by the expenditure of $385.96, but chiefly by knowing how.

I have never since talked this over with my friend, the bureau chief, in the health department who expected to see me emerge from the encounter like Don Quixote from the windmills, because I learned some years ago that in public life it is never wise to indulge in the luxury of saying "I told you

so"; but I have no doubt he still believes there was some sort of magic in it, a streak of luck that happens once in a hundred years!

This experience that I have related at such length is in no sense exceptional.

Five years ago, the Tenement House Committee of the Charity Organization Society undertook a similar campaign to secure, for another branch of the city government, the Tenement House Department, an increased appropriation of $169,000. (In New York we have a separate department to look after housing conditions, because we have so many tenement houses —over 100,000 separate ones.)

Similar methods were employed. The conditions were studied; the needs set forth; a campaign of letter-writing and publicity carried out; public hearings organized, etc., with a similar result; the full appropriation sought for was secured, and great social reforms made possible thereby. As a result of that campaign 7,000 privy vaults were removed from New York's crowded tenement districts, and over 260,000 windowless rooms were made a thing of the past.

More recently on behalf of the Committee on Criminal Courts a similar campaign has been carried on. That committee is concerned with the better administration of the minor criminal courts of the city—those known as "police courts" in other communities.

An important part of our work has been the abolition of the fining of women of the street for soliciting and the commitment of the younger and more hopeful ones to reformatories. This winter our state reformatory at Bedford became greatly overcrowded, having to accommodate 50 per cent. more than its normal maximum capacity. Notwithstanding this state of affairs and the representations made by the officers to the state authorities, but $50,000 was all that they would allow for new buildings, whereas $150,000 had been asked for to meet the minimum requirements, and $500,000 was really needed.

We were asked to help. A similar campaign to that described in this paper was promptly organized. This time with the legislature and the state authorities. With the usual results—instead of the paltry $50,000 originally allowed, we succeeded in prying loose $414,000 from the clutches of the watch-dogs of the treasury.

I would not have you think that there is any special magic that attaches to these efforts. Anybody can accomplish similar results if he will adopt similar methods. I know that others can do it, for others *have* done it. My friend Homer Folks has been doing it for years, in his field.

The moral of this plain tale from the hills is that the public official needs a "wicked partner!" Some one who will stand behind him and back him up, and do it all the time.

It is entirely possible to get all the money you need for public health work, but you must show the fellow who holds the purse strings that the people want it. Few health officers can do this; they cannot with propriety carry on a campaign of acceleration such as I have described here. But there are any number of able men and women who can do this, and who will contribute money and time and thought and civic patriotism unceasingly. All that is needed is to annex them to the public health movement. Mr. Health Officer, why not try it?

SECURING FUNDS FOR PUBLIC HEALTH WORK.

ALBERT G. MILBANK.

Read before the Sociological Section, American Public Health Association, Colorado Springs, September, 1913.

The recent gift of Mrs. Elizabeth Milbank Anderson in New York City of a fund amounting to $650,000 to make possible the establishment of a Department of Social Welfare of the New York Association for Improving the Condition of the Poor for the express purpose of promoting various public health activities, is doubtless the occasion of the request of the chairman of the Sociological Section of this Conference to prepare this paper.

The very fact that a fund of this size has been given by Mrs. Anderson for public health work is an indication that the problem of conserving the health of the community is of growing importance in the minds of those who are interested in activities tending towards the promotion of public and social welfare. The benefactions for the relief of actual poverty and for the care of dependents of various types have for many years been enormous, and rightly so. Without, however, any diminution in the amounts contributed for these purposes there is apparently a growing tendency to larger benefactions for public health activities.

In this connection it is interesting to note that an analysis of the World Almanac list of contributors to educational, religious and public health purposes, for the year 1912, shows that of 220 donors of gifts of $10,000 or over, 51 persons applied their gifts to religious purposes, 101 to educational purposes and 68 to more distinctly public health purposes.

This tendency toward a greater support of some of the activities tending to promote the public health of a community is, in my judgment, a tendency in the right direction. It grows out of an increasing consciousness of the fact that health is fundamental. In our religious and ethical work it is being recognized more and more clearly that a sound physical basis is one of the greatest essentials of a normal moral and religious life. To an even greater extent in our educational activities we are appreciating the fact that a well nourished and healthy body is a necessary preliminary to securing the best results of educational effort. Indeed, without health education is hardly possible. We find, accordingly, a rapidly increasing attention to the problem of the health of our school children. We find an increasing emphasis upon such problems as the medical care and treatment of school children. Medical inspection in our best public school systems is rapidly becoming more general and we are already tending to provide *medical care and treatment* for public school children, so that the term *med-*

ical inspection itself in our best schools is no longer adequately descriptive of the work done. It is only natural in this movement that individuals with means at their disposal and with an intelligent and sympathetic interest in the improvement of social conditions should be found giving largely to the promotion of activities directed toward improving the health and physical condition of school children.

There is also a growing recognition of the relation of public health to the economic development of the community. It is being realized more fully how fundamental is health to the economic independence of the family and of the individual.

In a recent classification of 6,060 dependent families which were given relief by one of the large relief organizations in the city of New York, it was found that in 40 per cent. of the cases the cause assigned, which forced the families to seek aid, was the lack of health. It is the general experience of relief organizations that this factor is more important than any other in causing the economic dependence of families.

We are thus growing more and more conscious of the fundamental importance of health, not only to education and economic independence but also to the happiness and well being of the individuals in society and also to life itself. It is, therefore, appropriate that private funds should rally to the aid and support of public health projects. Splendid examples of the tendency to do this are increasingly apparent. An appreciable proportion of the activities growing out of the magnificent Sage Foundation is devoted to the promotion of public health; the Rockefeller Institute for Medical Research, with its large resources, is devoted exclusively to the prevention of disease. Similarly the Rockefeller Hookworm Commission, with its large endowment, is devoting itself exclusively to the prevention of a single disease responsible for the lack of public health among a very large population of the country. Private associations of various kinds are springing up, which have as their object the prevention of disease and the conservation of health. The example has been set and should be copied widely. The motto used by the Board of Health of the city of New York on all its publications should dominate the thought of not only the tax-paying public but also that portion of the public with sufficient means to contribute to public health work. This motto, now so much quoted, is "Public Health is Purchasable." If public health is purchasable and is fundamental to social improvement, every possible effort should be made to interest the benevolent public to the end that the necessary purchase price may be secured.

The participation of Mrs. Anderson in the growing social self-consciousness of the fundamental importance of public health work, to which I have referred, led to the Milbank Memorial Fund for the purpose of promoting public health.

The appearance of two articles in one of the New York Sunday newspapers, one dealing with the problem of providing hot school lunches at cost and the other dealing with the ventilation of school buildings, stimulated the interest of Mrs. Anderson in these problems. Out of this grew a consideration of the problem how she could best contribute to a solution of the problems and this in turn led to a consideration of the relation of these problems to other public health problems. Gradually out of these considerations emerged the plan of the Department of Social Welfare devoted to a fairly wide range of public health activities.

In her letter of gift to the Association for Improving the Condition of the Poor, Mrs. Anderson says:

"In the first place I am particularly interested in fostering preventive and constructive social measures for the welfare of the poor of this city, as distinguished from relief measures affecting particular individuals and families. I fully appreciate the necessity for ministering to the physical needs of the sick, disabled and unfortunate, but in undertaking the work outlined in this letter I wish to make it clear that the proposed Department of Social Welfare is to concern itself, in so far as it employs funds supplied by me, with a social program based upon preventive and constructive measures.

"Generally speaking, therefore, this program should include those activities which are calculated to prevent sickness and thus relieve poverty, such, for example, as the promotion of cleanliness and sanitation and the securing of a proper food supply. In this connection your association will, doubtless, find it advisable in some cases to coöperate with public authorities, and with existing agencies having similar objects in view where such agencies are practicing approved methods in fulfiling their purposes, while in other cases it may probably be necessary to establish the work of a new enterprise, and in still other cases it will perhaps be prudent to devote some time and money to investigation and research before assurances can be given that any proposed measure will accomplish the object sought to be attained."

To meet Mrs. Anderson's suggestion, the work of the newly created Department of Social Welfare has been organized under three bureaus: one devoting itself to matters pertaining to general activities relating to public health and hygiene; one dealing with matters pertaining to public health as applied to public schools, and a third dealing with problems affecting public health so far as it relates to food supply.

Under the first of these bureaus the necessity of cleanliness plays an important part in Mrs. Anderson's program. In 1904, Mrs. Anderson gave to the same association money to establish a public bath. This has been maintained as a model public bath since that time and has been very influential in extending the public bath idea in New York City. In a little more than a decade the city of New York has expended more than

a million dollars for the extension of public baths alone. There are at the present time twelve interior public baths in this borough alone and in addition the city maintains a number of floating baths. Mrs. Anderson's interest in the public bath situation may be seen from the following quotation from her letter of gift:

"Under the heading of Public Health and Hygiene I would expect that the Milbank Memorial Bath in East 38th Street be maintained in its present state of efficiency as a model bath, and that an active educational campaign be carried on for the purpose of inducing the city to maintain the same standard of economy and efficiency in respect of the baths operated by it and for the further purpose of demonstrating to the city the advisability of extending the public bath system in properly selected sections of the city, and generally to popularize the public bathing facilities so as to increase their usefulness to the utmost. Under this heading also I would favor equipping one of the typical floating baths with a modern and approved filtration device, which I am advised can be made available and which would eliminate the present chief objection to the floating baths as now conducted."

The relation of the house fly and other insect carriers of disease to public health is also included in the plans for the Bureau of Public Health and Hygiene. An experiment has been conducted during the past summer to determine the relation of the fly to disease, particularly diarrheal diseases in children. For the purpose of this study a group of nine blocks in the city has been selected. Through the coöperation of the Health Department and the Tenement House Department, a very rigid sanitary inspection of these blocks has been maintained during the summer and all breeding places for flies have been removed so far as possible. One block in the center of this district has been screened and, through the coöperation of the Boy Scouts, fly traps have been placed and operated throughout the district. In the screened block in the center of the district a careful inventory of the sickness in existence when the experiment began was made. Provision was also made for instructing the families as to the necessity of keeping all food from places accessible to flies and for killing off whatever flies succeeded in getting inside the apartments. A daily inspection of each family was maintained for the purpose of observing the morbidity and mortality of each family and the results carefully recorded. For the purpose of control, a similar block, located sufficiently far from the screened block to be outside of the zone of the district so carefully made sanitary was chosen in which daily inspections were made for the purpose of observing similarly the morbidity and mortality. As a result of this experiment it is hoped that some light may be thrown on the importance of exterminating the fly from the point of view of public health. This serves to illus-

trate the kind of activity which the Bureau of Public Health and Hygiene will carry on. This bureau is also making a study of the desirability of establishing public laundries in the city of New York and is considering the establishment of a model experimental laundry. Efforts will also be made to secure an extension in the number of public comfort stations and to secure more satisfactory sanitary conditions in those maintained by the municipality and semi-public corporations, such as the subway and elevated railways, department stores, etc.

The Bureau of Welfare of School Children will deal with problems affecting the public health of school children, that is, those problems relating to their general physical condition. The problem of school feeding is one of the large interests of this Bureau. The efficient work which has been conducted by the School Lunch Committee of the City of New York, is to be supported and enlarged and careful studies will be made of the relation of giving hot nourishing school lunches at cost to children, to their physical development and their capacity to do school work.

This bureau will, in addition, make one of its main problems that of effective medical care and treatment of school children. It will also endeavor, to the end that medical inspection may be readily effective, to secure adequate clinical facilities for remedying physical defects. These will include dental clinics and special clinics for eyes, ears, nose, throat and other defects. The importance of cleanliness in school buildings is included in the proposed activities of the bureau. Efforts will be made to determine the best methods of cleaning school buildings and every possible effort will be made to secure the improvements in cleaning school buildings which may be suggested by the results of such studies. The importance of preventing the possibility of carrying disease through contact with drinking facilities, including drinking cups and faucets, has led to a program to secure the installation of sanitary drinking fountains in each school. An effort will also be made to keep the school toilets in a sanitary condition. These are some of the activities which the Bureau of Welfare of School Children will undertake.

The Bureau of Food Supply has, during the summer, been conducting an inquiry into the extent to which short weighing, short measuring and deceptive quality is found in the food supply of the poorer sections of New York City. Typical sections of the city have been selected and the purchases of a very large number of families from all of the food supply stores in that district have been checked up for the purpose of ascertaining how general is short weight and deceptive quality. The bureau is collating all of the available information with regard to the itemized cost of retailing food supply. Data is in the hands of this bureau which show the cost of delivering food supply, the amount which must be added because of the credit system, the portion of the expense which goes to salaries and wages,

for rent and to other items. Similarly, data relating to the cost of wholesale handling of food in New York City is at hand. The bureau is now tabulating and studying this data with a view to deciding whether it would be desirable to establish a store or series of stores on a social basis with a view to doing everything possible for the consumer consistent with maintaining a self supporting business.

It is hoped also that this bureau may in time become a bureau of information and public education in problems relating to food supply.

In addition to the three bureaus mentioned, a scientific research commission has been organized and appointed by the governor of the state of New York but supported by the Department of Social Welfare, which is to devote some $50,000 to the research and experimental work in ventilation of public schools and other buildings. The decision to undertake this research work grows out of the conviction that there is nothing which more vitally affects the health of school children than the problem of providing an adequate supply of fresh air under the best conditions. Apparently, however, even the most fundamental facts which lie at the basis of any effort to ventilate our school buildings have not been determined scientifically from experiments made thus far. It is hoped that the study which will be made by this commission will make it possible to establish with some degree of accuracy those fundamental facts which should be maintained in schoolrooms if they are to be the most beneficial to the health of the children. When these facts have been determined the engineering problem of meeting these conditions will be relatively simple.

In conclusion, I wish to reiterate that it is my judgment that the tendency which seems to be prevailing on the part of public spirited citizens with means to support and encourage public health activities is a tendency in the right direction and should be widely emulated. It is my belief that the funds devoted to these purposes accomplish relatively more than those devoted to other purposes, because public health itself is so fundamental to the progress of education and the general improvement of social conditions.

"Public Health is Purchasable." What better function can be performed by the funds devoted to benevolent purposes than supplying the purchase price of health?

THE NON-IDENTITY OF MODERN LEPROSY AND BIBLICAL LEPROSY.

H. W. Hill, M. B., M. D., D. P. H.,

Director; Institute of Public Health London, Ontario.

Read before the Section of Public Health Officials, American Public Health Association, Colorado Springs, September, 1913.

The only excuse for presenting this very old subject now is the continuance, even in these days, of the mis-treatment of sufferers from modern leprosy (lepra), due, as I believe, largely to unreasoning, traditional fears, to the terrible word-pictures which the clergy draw of Biblical leprosy (tsaraath), and to the popular identification of lepra and tsaraath, so widespread in all Christian lands. If it can be conclusively shown that lepra and tsaraath are names for two very different diseases, it may be possible to overcome the panic-stricken and cowardly cruelty so often visited on the modern lepra cases.

The problem of comparing the two diseases is not so difficult as might at first appear. It is true that we must compare a written account, penned thousands of years ago, with an actual disease now existing in numerous patients. But the written account in question (Leviticus xiii) has been translated with the greatest care from the most studied of all ancient literature. It does not consist of mere literary or poetic references on the one hand, nor of crabbed technicalities of long-dead, old-time physicians on the other. It was written by or under the supervision of the most highly gifted and best educated men of that day; but it was written in simple everyday language, avowedly intended as a diagnostic guide for the priests. It is not and does not pretend to be a complete description prepared for medical students or physicians, intended to make them familiar with every stage and symptom; it confines itself simply to supplying the data the priests needed in deciding a crucial question—a momentous, solemn question to the individual whom they examined. A mistake in diagnosis might cut him off from his family, friends and the community, condemning him to outer darkness and loneliness, misery of every kind. Hence the minuteness and care, the repetitions and emphasis of the description; hence also the confinement of the description to the simplest of terms.

Taking these diagnostic signs, studying and checking them up, we find two almost constantly reiterated. Whatever the minor variations noted for varying types one of the requirements were usually essential for the recognition of tsaraath; absence of both excluded it absolutely. If the lesion in question was under the skin, or if it enlarged noticeably in a week or at most two weeks, the patient had tsaraath.

If the lesion was not under the skin, or being in it, failed to enlarge much in a week, or at most two weeks, the patient did not have tsaraath (although, if it spread later, it might be tsaraath).

Is there need to go further? However much or however little we may know about lepra, we all know that its skin lesions are in, not under the skin; we all know that these skin lesions enlarge very slowly; we all know that to demand for a diagnosis of lepra, that the lesions should be subcutaneous, or should spread rapidly would be to prevent the recognition of practically every case at every stage; and would compel the diagnosis of lepra in cases entirely free from it. In brief, if a physician, following the Mosaic handbook, should attempt to pick out modern lepers from a crowd of miscellaneous patients, he would infallibly miss every leper and might easily identify as leprosy some of the innocent cases. Tsaraath and lepra are not only different—on the crucial diagnostic points, tsaraath is the converse of lepra.

How then has arisen the widespread belief in their identity? First, perhaps by reading into the text the ideas of contemporary historians and commentators all down the ages—ideas based, not on the text, but on what these commentators and historians thought about what was in it, but particularly about what was not in it; about what they thought ought to be in it, which Moses unfortunately left out! Second, from pure confusion of mind with regard to the identity of very many diseases. Remember that when the Hebrew text was first translated, indeed for very long after that period, not only lepra itself was only partially known, but syphilis was yet to be worked out; tuberculosis as an entity was not even suspected; cancer itself was in chaos. Typhus fever and typhoid have only been disentangled within 100 years; chicken-pox and smallpox were taught even by Unna as identical. The translators found in the Hebrew text a terrible disease described; they had heard lepra (or leprosy) spoken of with horror and loathing; perhaps they had seen it, shuddered and hastened away. They had no great reverence for the literal identification of one loathsome disease with another. They wanted to bring out the spiritual lesson, not the material. To translate the name "tsaraath" as "plague" or to transfer its name directly into the English text would take from it all significance to the average mind. Why not translate it as leprosy, a disease people already knew and feared; a quite probable disease too, for was it not exactly in Palestine that leprosy flourished?

Modern medical writers, usually slip out of the question by assuming that Moses adopted the folk-lore or old-wives' fables that he found existing, and lumped under tsaraath, either from carelessness or ignorance, a wide range of commonplace skin diseases, some of which they identify as psoriasis, vitiligo, syphilis, scabies, etc.

This assumption does Moses little justice and is not at all in keeping with the care and the foresight he showed in his writings in general; moreover, the identifications of the psoriasis, etc., are made by these writers on single symptoms wrenched from their context; a long distance, snap diagnosis that would put to shame a correspondence school doctor.

I do not pretend to identify tsaraath with any disease; the diagnostic points given are not sufficient to recognize what it was; but they are wholly sufficient to recognize what it was not—and this list includes psoriasis, vitiligo, syphilis, scabies, for none commonly show subcutaneous skin lesions, nor do the skin lesions necessarily enlarge definitely within one week or two.

There is, however, no objection in speculating on its identity with any modern disease. There are two points in which tsaraath, as described by Moses, differs essentially from any disease known now; these are its ability to develop in clothing; and its ability to develop in the walls of houses. If these are dismissed as mere errors of observation, then we may as well dismiss the whole subject; for errors so great once admitted would assign the whole thing to the waste basket. If we suppose that Moses knew what he was writing about, we must give due regard to these statements; and we have no right to assume that tsaraath could not have presented these features simply because no modern disease is known to do so. Suppose that a parasitic mould or sporothrix, sometimes saprophytic, existed, which has since died out; at once the whole account becomes lucid and connected.

However this may be, there are two other points upon which tsaraath and lepra are often supposed to agree. The first is that both were extremely contagious; the second, that both were incurable. At this point the psychic and logical muddle becomes so complicated that it is difficult to untangle the threads. In the first place, if tsaraath were extremely infectious, as assumed, it differed extremely from lepra, which, as we know it, is less than one tenth as infectious as consumption. But the intense infectiousness of tsaraath is pure assumption. It is true that on its discovery in a person, that person was pronounced unclean, and, like all the unclean, was cut off from communication with the public. This has been assumed a public health measure—the isolation of a contagious disease. But nowhere is any instance quoted in the Bible of even a single case, caught from a preceding case. Never from cover to cover is the tsaraath case spoken of as a physical menace to others. No precautions were prescribed for the priests in handling or examining tsaraath patients, tsaraath clothing, or tsaraath houses; nor were any precautions prescribed for the workmen who were to scrape the disease from the stones or pull the infected house down. Then why was the tsaraath-infected patient's clothing or house called "unclean"? I do not know. Why was a daughter in whose face her father spat called unclean; was it because she was a grave public health danger to others? Why was a recent mother "unclean" and still more why was she unclean twice as long if the baby were a girl as she was if the baby were a boy? Was it for fear of infection to others? If "uncleanness" was intended as a public health measure, why were not syphilis, measles, tuberculosis, cancer and smallpox made unclean also, for undoubtedly all

these diseases flourished then as now. In all but this one of the many, many circumstances under which a person was pronounced "unclean" by the Mosaic law, we frankly are in ignorance of its significance. Why should we assume that its significance in the case of tsaraath was so different, so evident, so modern as isolation for a communicable disease?

With regard to the alleged incurability of tsaraath helping to identify it with lepra, we may dispute the incurability of lepra with some success. But it is still simpler to show that tsaraath was not incurable, else why was an elaborate ceremonial provided for the cured man or woman to perform? Leaving out of account the alleged miraculous cures, we have several implications that cases became cured spontaneously; indeed, the diagnostic handbook in Leviticus points out how to recognize a cured case.

SUMMARY.

Lepra, the modern leprosy, shows its skin lesions in, not *under* the skin, enlarging slowly if at all, the enlargement in most cases being far too slow to notice in a week, or even in two. Tsaraath, the Biblical leprosy, showed its lesions, *under*, not in the skin; if the lesions were in the skin but failed to enlarge noticeably within a week, or at most in two weeks, the suspect was released. The two diseases are, therefore, *converse*, as regards these, the essential points of diagnosis of tsaraath. The infectiousness and incurability of tsaraath, supposed to aid its identification with lepra, are nowhere mentioned or implied in the Hebrew accounts. This ancient belief in the identity of the two diseases has undoubtedly added much to the sufferings of the modern leper and should be dispelled as soon and emphatically as possible. Modern leprosy should never be called by that name, but always designated as lepra; and every effort should be make to point out that it is produced by a well-known germ, belonging to the tuberculosis group; and is in clinical effect a second cousin, so to speak, to tuberculosis, but much less infectious—a disease to be supervised and prevented from spreading, of course, but calling for no panic-stricken flights from its neighborhood and no especial hardships or cruelty to its unfortunate victims.

I wish to acknowledge the kindly help, criticisms and suggestions in preparing this paper of two Hebrew scholars, Rev. Dr. Waller, principal of Huron College, Western University, London, Ontario, and Rabbi Deinhardt Lecturer on Hebrew, University of Minnesota, Minneapolis, Minn. On the clinical side, my own limited acquaintance with the disease in Massachusetts and Minnesota has been kindly supplemented by the greater experience of Dr. H. M. Bracken, secretary of the Minnesota State Board of Health, who has long interested himself in the lepers of the United States; and of Dr. A. J. Chesley, director of the Division of Epidemiology of the same Board, who has seen the disease in the Philippines as well as in Minnesota.

BOOK REVIEWS.

Immunity Methods of Diagnosis and Therapy and Their Practical Application, *By Dr. Julius Citron, Assistant at the University Clinic of Berlin. Translated from the German and edited by A. L. Garbet, M. D., Assistant Pathologist and Adjunct Visiting Physician, German Hospital, New York. Second edition, revised and enlarged, 4° 267 pages. Cloth, $3.50 net. Philadelphia, P. Blakiston's Son & Co. 1914.*

This book constitutes one of the best simple presentations of the subject of immunity methods of diagnosis and therapy with which we are familiar, and admirably supplements the various handbooks dealing with the theories and principles of immunity.

In its second edition, it includes chapters dealing with the immunity work on malignant tumors, anaphylaxis, serum therapy, and chemotherapy. The new material is well chosen and the information given is accurate, though an occasional slight error is noted, as, for example, the statement (p. 239) that the serum therapy of infectious diseases is still "in its prime." No mention is made of Abderhalden's recent work in the sero-diagnosis of pregnancy, nor of Swift's work on salvarsanized serum, nor of Schick's valuable skin reaction with diphtheria toxin. Despite these omissions, the book will be found extremely useful. It can be cordially commended to all interested in modern diagnostic and therapeutic immunity methods.

Charles Bolduan.

The Effect of Tuberculosis Institutions on the Value and Desirability of Surrounding Property. *A sixty-four page pamphlet issued by The National Association for the Study and Prevention of Tuberculosis. The pamphlet will be distributed free of charge to members of the National Association. Non-members of the Association may purchase it, for ten cents, postpaid, from the office of the National Association for the Study and Prevention of Tuberculosis, 105 East 22nd Street, New York City.*

In an effort to allay the constant clamor which seems to arise every time it is attempted to locate a tuberculosis hospital, either in the city or in the country, this pamphlet was issued, which is designed to present practically all of the available information upon this important subject in such form that those who are interested in the location of institutions may find ready access to it. The subject is divided into eight parts as follows:

1. A review of former investigations of this character including those by William H. Baldwin, and Philip P. Jacobs.

2. Information obtained from a questionnaire study of eighty-four hospitals and sanatoria in all sections of the United States with regard to the change in surrounding property values; the effect of these institutions on the health of the neighbors; the original reasons for opposition and the present feeling; some material benefits of an institution to the neighborhood; and many pertinent comments by superintendents on all phases of the question.

3. Facts obtained in a first-hand investigation of five institutions in different localities and of different types to show the rise or fall of assessed valuation of surrounding property; the increase of property values indicated by known sales; the expressed feeling of property owners; and the feeling of the general public.

4. A digest of several typical laws regulating the approval of sites, and some restrictive ordinances.

5. Some opinions of eminent men, boards of health, and insurance companies.

6. Court decisions relating to the location of hospitals, sanatoria and dispensaries, including the possibility of their being a menace to public health, or a nuisance.

7. Summary and Conclusions.

8. Appendix, with assessment tables referring to hospitals in Chapter 11.

Among the conclusions which are drawn from a study of the data collected in this report, none are more emphatic than these two, that a tuberculosis hospital is not a menace to the health, nor a detriment to property. Practically all of the evidence that has been collected, whether in the form of opinions of interested parties, or of court decisions, or of entirely disinterested individuals, bears out these conclusions. On the other hand, there is considerable testimony available to convince one that hospitals are frequently a benefit to communities in which they are located. So convincing are these conclusions that anyone who is open to conviction cannot fail to recognize their worth.

Pathogenic Microörganisms. *A textbook of microbiology for physicians and students of medicine. By Ward J. MacNeal, Ph. D., M. D., Professor of Pathology and Bacteriology in the New York Post-Graduate Medical School and Hospital, New York. (Based upon Williams' Bacteriology.) 12 mo. Pp. xxi 462. With 213 illustrations. Philadelphia. P. Blakiston's Son & Co. Price, $2.25.*

Since the appearance of the first edition of Williams' Manual of Bacteriology, in 1898, it has been a favorite in many quarters on account of the arrangement of the subject, the judicious apportionment of space to the various heads, and especially on account of the care and attention given to establishing a firm basis of general bacteriology before going to the study of the purely medical side. The fourth and fifth editions were hastily prepared and contained numerous errors but in Doctor MacNeal's edition it has been greatly improved, and will be welcomed by those who desire a text which includes a discussion of laboratory technique and general bacteriology as well as of the purely pathogenic sides. Particular effort has been made in the present edition to improve the sections dealing with the pathogenic microörganisms other than bacteria.

Among the sections deserving especial mention as better than the ordinary are those on the microscope and microscopic technique, and on laboratory technique in general, a discussion covering 122 pages. Part Two deals with the general biology of microörganisms and contains excellent chapters on the distribution and relation to their environment. Part Three discusses specific microorganisms, including yeasts, molds, fungi, bacteria, and protozoa.

While the book is not planned to compete with other works in a detailed discussion of each subject, it contains remarkably well chosen material in a brief and usable form and the illustrations are equally well chosen from a large number of standard references. In the form of footnotes, there are many references to original sources and there is an index of proper names as well as of subjects.

E. A. Ingham.

HEALTH DEPARTMENT REPORTS AND NOTES.

REPORTS

Jacksonville, Florida.

Dr. C. E. Terry, Health Officer of Jacksonville, presents an excellent report for the year 1913. Jacksonville is a city of 67,209 people, as estimated by the new method prescribed by the Bureau of the Census, and presents all the typical problems of a southern city with its colored population of more than fifty per cent. and its characteristic diseases. Apparently Dr. Terry's administration may well serve as a model to similar cities, as his efforts have met with notable success.

The new method of estimating population (by the ten-year federal census alone instead of by the 1905 state census and 1910 federal census) has caused a lower figure to be set for the total population and thus serves to lessen the apparent decrease in death and disease rates which would otherwise be quite marked. The crude death-rate was 19.1, a reduction of .7 per thousand from the 1912 figure. Corrected for non-residents, the rate is 15.7. The crude negro death-rate was 22.5, and the crude white rate 15.6, so that it may be seen that the high figure is largely due to the negro population. The birth-rate for the year was 24.2 per thousand and the infant mortality rate was 110 per thousand births, a good figure in view of the number of births attended by midwives.

The contagious disease situation has shown, in general, continuous improvement during recent years. Tuberculosis has been difficult to reduce, owing to the numerous cases which are brought in, especially those which come from the northern states for the winter; and to the susceptibility of the negro to diseases of the respiratory tract. Owing to lack of funds, little work has been done in preventing tuberculosis and it heads the list of causes of death. Typhoid fever has shown a steady and marked decrease in its death-rate, accompanying the elimination of open privies and the consequent decrease in infection by flies. Diphtheria shows a marked increase in the number of cases accompanying a similar increase throughout the state. Realizing the importance of carriers in relation to the spread of diphtheria, the Board of Health has adopted a new ruling which provides for the location and control of carriers and that no fumigation shall be done unless the prescribed procedure for their control has been carried out. During the past, no cultures of nasal specimens have been made, owing to inadequate facilities, but for the future an outfit with two swabs has been prepared and nose and throat cultures will be planted on the same serum tube, thus avoiding the extra work in negative cases. The malaria death-rate has been largely decreased by investigating all deaths reported, as it is found that the term malaria, is frequently misused. Extensive extermination of mosquitoes by means of oil is also carried on, but it is urged that citizens realize their own responsibility instead of relying wholly on the health authorities.

The infant mortality situation has been in very bad shape, up to the present time, owing to the unsanitary conditions among the negroes and the ignorance and ridiculous practices of the midwives. Of 1,632 births in 1913, 849 were attended by midwives, so that it was not thought possible to prevent their practising entirely since it would probably deprive many mothers of skilled attendance of any kind. To avoid this difficulty, an ordinance was passed which forbade the practice of midwifery by any one who had not

passed a satisfactory examination in the elements of the subject and that in preparation for this examination the Board of Health should provide free instruction in such elementary principles.

Another section of the report deals with the construction of the new isolation hospitals, and is fully illustrated. These new hospitals are built after the plan used in the Providence City Hospital as devised by Doctor Chapin, but are on a smaller scale and would be well worth visiting.

Other reports are those of the infant welfare nurse, the school medical inspectors, the school nurses, the colored district nurse, the bacteriologst and chemist, the milk and dairy inspector and the market inspector; all of which are well-prepared and instructive. The tabular reports are well chosen, and so arranged as to make any desired piece of information easy to find. Both the statistical tables and the report in general conforms, as far as possible, to the plan devised for uniform reports by the committee of the Massachusetts Association of Boards of Health.

Judging from the report, those who attend the meeting of the American Public Health Association will find that they may spend some of their time very profitably in a study of Doctor Terry's work and methods.

Orange, New Jersey.

The city of Orange, New Jersey, presents its report for the year ending December 31, 1914. During the year the health officer, Mr. J. Scott MacNutt, resigned, his place being filled by Mr. Frank J. Osborne, formerly of Montclair, New Jersey. The good work which the Board of Health has been doing in the past has been carried on with increasing success.

The death-rate of infants under two years of age from intestinal diseases reduced nearly fifty per cent. during the year, due largely to the employment of a nurse during July, August, and September, and to the successful cooperation with several charitable bodies which have organized into "The Infant Hygiene League of the Oranges."

A short summary of the mortality statistics shows interesting improvements. The corrected local death-rate shows a drop from 13.96 per 1000 population in 1912, to 11.86 per 1000 in 1913, the lowest on record. Also the infant mortality rate is the lowest on record. For the first time since records have been kept, there was no death from scarlet fever or influenza and the number of cases of scarlet fever, diphtheria, typhoid fever and measles have shown material decreases. The number of cases of tuberculosis show some increase, due probably to the doctors realizing the value of early diagnosis and report in order that proper prophylactic measures may be taken. However, the death-rate, of 188 per 100,000 population, is the lowest, with one exception, for the last fifteen years.

The work on the control of the milk supply is of unusual value, the past year showing great advances. Two new ordinances were enacted which are in the main responsible. One of these fixes the bacterial limit of milk sold in the city at 100,000 per cubic centimeter. In the report there is a table which shows the results of the complete analysis of milk for specific gravity, fats, total solids, bacteria and sediment, for each dealer, from June to December. The dairy scores are also given in another table. This publicity is very valuable, since it gives the public a chance to see just what they are buying and gives the producers the chance to see where they can improve.

The second ordinance which went into effect in September requires steam sterilizers to be provided in every milk bottling establishment, besides several other excellent regulations governing the conduct of such places.

In fact, the work of caring for the public health seems to be carried on in a most efficient and progressive manner as shown by the excellent report.

Lowell, Mass.

The City of Lowell, Massachusetts, presents the annual report of the Board of Health for the year ending December 31, 1913. In the introductory report of the board to the mayor and council, there are one or two interesting facts. Lowell has apparently always had more or less typhoid fever with now and then an epidemic which shows higher numbers of cases and deaths. In 1913, the total number of cases was 65, with eleven deaths. These figures show a decrease from 1.59 per 1,000 inhabitants to .10 in twenty four years. The city also had a small epidemic of a very mild form of smallpox during June, July, and August. There were forty cases, but no deaths.

Following this introductory report come the reports on medical inspection of schools, inspection of milk and minor divisions of the department. None of these reports are very full, giving little more than the bare statistics. Quite an amount of work is done apparently on dairy inspection, this being placed as more important than the bacterial counts which, however, are done, although no record is given.

Under the section on vital statistics are given several comparative tables showing deaths and, in some instances, cases for a few years back. There is also a mortality report of deaths for 1913, classified according to the international classification, and by age periods.

The financial statistics which occupy several pages of the last section of the report are unusually full and well tabulated, in most cases showing comparisons for several years. The figures on garbage and refuse disposal which are given here are not often found in health department reports.

If any criticism of the report as a whole were to be made, it would be more on the form rather than on the information contained therein.

DEPARTMENT NOTES.

Health Department Accounting.

In the weekly *Bulletin of the Department of Health of New York City*, for May 23, 1914, there is a short article on accounting and analysis of costs which seems to be of sufficient value to quote entire.

"Cost analysis," it says, "is essential to the intelligent and successful conduct of any business. The business man who fails to analyze costs, is likely to be the victim of competition. In the conduct of public business, the element of competition does not enter, public business being essentially a monopoly; but the administrator of a municipal department, who seeks to serve his city well, will endeavor to ascertain how the money entrusted to him should be distributed, how it is actually distributed and with what results.

"Commentators on Health Department work in various cities throughout the country frequently compare the expenditures for health purposes of one city with those of another, on the basis of population. Thus it is assumed that a city which spends eighty cents per capita per annum for health purposes, is a progressive city in the matter of health, while one which spends thirty or forty cents is unprogressive. Superficial comparisons of this sort are of some value, but the time has come when the cost of public health work should be studied analytically with relation to the various functions of the Department of Health.

"A standard method of accounting for Health Departments is needed; such a method, if used, would enable the Department of Health in this city, for example, to compare the cost of its work, item for item, with the cost of similar work carried on elsewhere. In this way, normal expenditures for definite purposes would soon be established. Economies of method devised by particularly capable and successful administrators would become known to others, and could be generally adopted, while extravagance and waste would speedily and almost automatically be checked.

"The Department of Health of the City of New York has just completed an expense accounting statement for the year, 1913, which, while it does not exhibit, as fully as desirable, the individual costs of all of the functions of the Department, nevertheless is a distinct step in the right direction.

"At the next meeting of the American Public Health Association, the appointment of a committee will be requested to outline a standard system of cost accounting for Municipal Health Departments."

Summer School for Physicians and Health Officers.

Under the auspices of the Kansas State Board of Health and the School of Medicine of the University of Kansas, is to be held the fourth annual Summer School for Physicians and Health Officers. This is a rather unique undertaking and the men attending obtain much valuable information and knowledge.

The following are the titles of some of the lectures which relate more particularly to public health work: These by E. F. McCampbell, M. D., Executive officer of the Ohio State Board of Health, are: Public Health Problems and Their Solution; The Control of Contagious Diseases by the Local Board of Health Agency; Tuberculosis, the Health Officers Attitude toward the Problem; Occupational Diseases and Hygiene. Some of those by M. J. White, M. D., Surgeon, Public Health Service, St. Louis, Mo., are: The Problem of Infant Mortality; Overcoming Opposition to Public Health Work; The Epidemology of Poliomyelitis. Dr. E. R. Kelley, State Commissioner of Health, Seattle, Wash., also gives several lectures, among which are: The Evolution of our Ideas on Infection; Camp Sanitation; School Sanitation; and Milk and the Public Health.

Health Department and Physician.

What a physician ought to do and what a department of health may do in return is suggested by the following note from the New York City *Weekly Bulletin* of June 13:

I.

The department expects correct and prompt reporting of births.

Correct and prompt reports of deaths.

Prompt reports of cases of infectious diseases.

Systematic coöperation in seconding the efforts of the department of health in public health work.

II.

The department places at the disposal of physicians diagnostic laboratory facilities in tuberculosis, typhoid fever, diphtheria, meningitis, malaria, syphilis, gonococcus infections and rabies.

It furnishes assistance in the clinical diagnosis of contagious diseases, meningitis, poliomyelitis, rabies and diseases of doubtful origin considered possibly communicable.

It supplies physicians with antitoxins and vaccines for the prevention and specific treatment of diphtheria, tetanus, typhoid fever, rabies, gonococcus and other infections in which such treatment is of value.

It stands ready, day and night, to perform intubations for cases of laryngeal diphtheria

It performs free disinfection of infected premises for the physicians' patients.

It offers hospital care for the patients ill with contagious diseases, including tuberculosis.

It provides a sanitorium where physicians may send tuberculous patients.

Through its system of school medical inspection it refers physicians to a large number of patients needing medical and surgical care.

It guards against the practice of unqualified midwives through a system of permits, and against unqualified physicians and so-called healers by close supervision of all birth and death certificates.

It campaigns against quackery and patent medicines.

It publishes numerous scientific bulletins for free distribution to physicians.

Hypochlorite Treatment Now Firmly Established.

Tabulated Typhoid-Fever Death-Rate Statistics for Eight American Cities Before and After Using the Chemical.

"That 600 cities in the United States are using hypochlorite of lime for water sterilization and that no city following a proper procedure has found it necessary to discontinue its use was the contention of C. A. Jennings in a paper read before the Illinois

AVERAGE TYPHOID-FEVER DEATH RATES PER 100,000 PERSONS.

City.	Before using. Period.	Rate.	After using. Period.	Rate.
Baltimore	1900–10	35.2	1912–13	22.8
Cleveland	1900–10	35.5	1912–13	10.0
Des Moines	1905–10	22.7	1911–13	13.4
Erie	1900–10	38.7	1912–13	13.5
Evanston	1907–10	26.0	1912–13	14.5
Jersey City	1900–07	18.7	1909–13	9.3
Kansas City	1900–10	42.5	1911–13	20.6
Omaha	1900–09	22.5	1911–13	11.8

Water Supply Association on March 9. Where the bleach treatment has fallen into bad repute it has been due, in his opinion, to a poorly designed plant, improper application, anticipation of a removal beyond practical limits or to the fact that the method was not adapted to remedying the particular water trouble encountered. Beyond its sphere of usefulness, bleach treatment has practically no value.

"Statistics were presented to show that hypochlorite treatment is now firmly established, as it has accomplished what its conservative advocates originally claimed for it. The selective action on germs of water-borne disease has been proved by bacteriological analyses and typhoid statistics over a period of nearly six years.

"Of the eight cities the maximum reduction, 72 per cent., was in Cleveland, and the minimum, 35 per cent., in Baltimore. The average was 51 per cent. The total population considered is 2,033,000 and with a reduction per 100,000 population for each year of 15.8 deaths with lives valued at $5000, $1,806,000 annually has been conserved."

Engineering Record, June 13, 1914.

Free Wassermanns by a Town Board of Health.

The town of Brookline, Mass., has again shown the progressive attitude of its board of health by the circular recently issued to all the physicians of the town, calling attention to the fact that the board of health will make, free of charge, for residents of Brookline, Wassermann tests for syphilis and the complement fixation test for gonorrhœa which corresponds to the former. The board of health believes that the more frequent use of these tests will result in preventing the spread of these serious communicable diseases and will also enable physicians to recognize and successfully treat, in so far as possible, cases afflicted with these diseases. Accompanying the directions for taking proper blood samples, is an explanation of the various uses of the Wassermann reaction and the complement fixation test, and also an interpretation of the results. There are also rules for patients.

Lack of Coöperation between City Departments.

"It is one of the anomalies of the regulation of street cars in Chicago, as far as it relates to the health and comfort of passengers, that the Board of Supervising Engineers approves the purchase of cars by the companies without permitting the health department to have any say in regard to the matter. Then when the cars are put into service and the public storms the health department with complaints on the subject of the dustiness, bad ventilation, lack of heat, etc., the department has to try to persuade or threaten the companies into making the necessary alterations in the cars or their equipment.

"The department, therefore, is glad to chronicle a radical step forward. The Northwestern Elevated Railway Company has voluntarily submitted to the ventilation division of the health department plans for the ventilation of all new cars."

Bulletin of Chicago School and Sanitary Instruction, May 23, 1914.

The New York State Health Department Bulletin.

It is with interest that we note that the March, 1914, issue of the *Monthly Bulletin of the New York State Department of Health* appears under the editorship of Prof. C.-E. A. Winslow, formerly of the Massachusetts Institute of Technology and the College of

City of New York. This bulletin is one of the best of those issued by state health departments. The March issue is called the School Principal's number and is designed to give them current opinion and information on school sanitation. Among some of the larger of the articles is one by Professor Winslow, himself, who is the advisory expert in public health education. The article is entitled, "Sanitation of the School Building." It takes up from the latest point of view such topics as, Good Air and What it Means, Lighting in the Schoolroom, School Seats and Spinal Disease, and Water Supply and Toilet Facilities.

Another very interesting article is one on School Medical Inspection, by S. Josephine Baker, M.D., of the Bureau of Child Hygiene, Department of Health, New York City. This article has very good illustrations showing some of the actual work. Doctor Baker says, in introducing the subject, "the use of the school as a clearing house to determine the physical condition of children of school age and the responsibility of the school for conserving the health of school children, are so important that there ought no longer to be any argument as to whether school medical inspection should be carried out in any community. Fortunately, in New York State, the present law requires that the health of the children in all of the public schools, of this state shall be cared for in this manner."

Besides these main articles are also other shorter ones which contain often useful information for health officers. There are also the usual reports and statistical tables. Indeed, the New York State Department of Health and the new editor of the *Health News*, Professor Winslow, are to be congratulated on the value and make up of the bulletin.

Erie, Pa., Board of Health Regulation Regarding Wrapping of Bread.

During the past winter, the board of health of Erie made a regulation requiring the wrapping of bread in clean paper impervious to pollution from dust, flies, vermin, or from the hands of persons handling it before sale. The bakers objected to the rule on account of the alleged deterioration of the bread due to wrapping.

After litigation on the subject, an opinion was handed down from the Court of Common Pleas of Erie County upholding the board of health. The following are some of the findings which upheld the decision:

"Bake shop products are used as an article of food without further preparation by washing or cleaning, and since drivers of wagons are careless about personal cleanliness, and since often little or no care is taken to protect the bread from dust, etc., en route, it easily becomes contaminated and may become a direct cause of spreading disease. Also, since all bake shop products are consumed, when fresh, within four to fourteen hours after baking, the wrapping at the plant can have no harmful effect. In fact, from evidence brought out, the wrapping of bread actually tends to improve the quality. The cost of such wrapping was not found to be excessive nor a burden to the bakers."

This question seems to be a real public health problem and one which has come up in other cities. It may be that this decision may prove useful as a reference.

Violet-Ray Sterilization for Niagara Falls Filters.

"Niagara Falls will have the first municipal ultra-violet-ray sterilization plant in this country. Contract negotiations were consummated June 5 for a 35-lamp installation with the R. U. V. Company, Inc., of New York, to be completed about September 15. 'Pistol' lamps, as described in the *Engineering Record* of August 2, 1913, page 121, will be used, seven in each of five concrete canals, although the company estimates twenty-five lamps only will be required to handle the capacity of the plant, 16,000,000 gallons daily.

"The cost of the canals and lamp installations will be $19,800, while the city will erect a building and transformers to change the current from alternating to direct, at a cost of $2200. Approximate costs per 1,000,000 gallons for maintenance are guaranteed as follows: Current, 7 cents; lamp

renewals, based on a 2900-hour life, 60 cents.

"About 1 gr. per gallon of coagulant and 5 lb. of bleach per 1,000,000 gallons have been used at this plant, the total cost of chemicals running about $1.50 per 1,000,000 gallons. It is hoped that the coagulant can be cut in half and still give a clear water, in which case the ultra-violet-ray installation will prove economically advantageous.

"The channels in which the water will be sterilized will be of concrete, 2 feet wide, 3 feet deep and 26 feet long, affording a contact period of 30 seconds with the ultra-violet rays. The lamps are spaced 30 inches apart and in front of each is a baffle of wired glass in which a rectangular opening is cut to divert the water against the quartz tube."

Engineering Record, June 20.

Police Coöperate in Panama Health Work.

"A number of suggestions made by the health officer of Panama looking toward an improvement in the sanitary conditions at the public market on North avenue have been approved by the Governor and agreed to upon the part of the Panama Government. Under the new arrangement, which will be placed in effect at once, it is proposed to hold the renters of tables in the market responsible for the condition in, under, and around them, and they will also be required to keep the floor pertaining to these tables free of refuse at all times. To see that this order is properly carried out, the Panama police department will detail three members of its force for duty at the market during the regular hours of business, namely, from about 6 a. m., to 2 p. m. One of the policemen must be able to speak Spanish, another English, and the third French, fluently. In addition, the health officer will employ two men whose duty it will be to keep the public aisles between the tables and stalls clean. The department of public works of the Panama Government has agreed to bear the cost of the two men thus employed, and an arrangement has been practically arrived at, whereby the amount involved will be collected from the official in charge of the market at the close of each day's business, and turned over to the collector of the Panama Canal in reimbursement for the outlay."

The Canal Record, June 3.

The Application of the Tuberculin Test to a City's Milk Supply.

In the May number of the *Charlotte Medical Journal* there is an interesting article on the application of the tuberculin test to a City's Milk Supply, by Mosly G. Perrow, Ph. D., of Lynchburg, Va. The city of Lynchburg was taken as an illustration, as the process had been so well worked out there. The ordinance as passed by the city council required "the testing with tuberculin of every cow supplying milk or cream to the city or the pasteurizing of such milk or cream, but it was also stated that no reacting cow could supply milk or cream to the city regardless of pasteurization, and further that every cow inside the corporate limits should be tested whether the owner sold the milk or not. The reacting animals should immediately be slaughtered under direction of the health officer or placed in quarantine by the state authorities."

It took three years of educational work before this ordinance could be passed, but now the article says that the herd owners are even more eager to have it done than the public. The fee charged by the health department is remarkably low, 25 cents per head, so that it is no burden, and the Bureau of Animal Industry gives the city the tuberculin.

In most instances, also, the cows are slaughtered and sold at a fair price, since in most cases the tuberculous lesions are localized either in the lungs or the intestines and the rest of the body is perfectly good for food.

This experiment in Lynchburg appears to have been very successful and apparently could be applied to other cities of not too great size where the milk supply is localized more or less. But as Dr. Perrow remarks, "The lesson taught is that while testing with tuberculin is of the greatest importance, it should not be undertaken without a previous course in general education. No one can oppose testing if he fully understands the needs."

A New Bureau of Public Health Education.

It is interesting to note in the June 6, 1914, issue of the *Weekly Bulletin of the Department of Health of New York City*, the institution of a new department which shows the progressive spirit of the New York Health work.

"On May 26, 1914, the board of aldermen by a vote of 54 to 4, recorded its approval of a proposal made by the commissioner of health, and subsequently endorsed by the board of health and the board of estimate and apportionment, to establish in the department of health a bureau of public health education.

"The civil service position of Director of the Bureau of Public Health Education has been established at a salary of five thousand ($5,000) dollars per annum, and it is understood that the appointee will devote his time and attention to the work of the bureau to the exclusion of all conflicting professional interests. Pending the appointment of a permanent director of the new bureau, Dr. Charles F. Bolduan, formerly assistant to the general medical officer of the department, has been directed to organize a division of public health education, with such means as are available; Dr. Bolduan has been designated temporarily chief of division and has been made directly responsible to the commissioner.

"Among the suggested functions of the proposed Bureau of Public Health Education are the following:

"1. To prepare and publish popular leaflets dealing with various matters of public health; to issue press bulletins; and to edit the regular publications of the Department of Health, including the *Weekly Bulletin*, the *Monthly Bulletin*, and *Staff News*, and such other publications as may hereafter be issued.

"2. To organize and direct public health lectures, both independently and in connection with the existing educational, social, medical and civic agencies.

"3. To prepare traveling exhibits to be shown in various parts of the city, designed to educate the public in various phases of public health.

"4. To prepare and exhibit moving picture films dealing with public health work.

"5. To administer the library of the department of health and conduct in connection therewith a Journal Club for the study by department officials of public health literature.

"6. To assist in the organization of a school of sanitary science or in the preparation of practical courses in public health in conjunction with medical schools and colleges.

"7. To organize educational lecture and study courses within the Department for the training of various groups of workers."

Another Baby Bulletin.

The North Carolina State Board of Health has just issued its *Special Bulletin No. 40* as a supplement to the *May Health Bulletin*. It is entitled "How to Keep Your Baby Well," and is an excellent example of how a bulletin intended for popular education should be prepared. It is printed in red and black and has its headings emphasized by heavy type in such a way that it is attractive and easily readable. Paragraphs and sentences are short and to the point but in many cases this four-page leaflet will undoubtedly be found to give more results than the more comprehensive government bulletin on the care of the baby.

As an example, we clip the following from the heading "What a Baby Needs."

Food—Mother's milk is the best food known for babies. A baby should gain steadily in weight. When he fails to do this, or if he gets sick, don't lay it to teething. It is probably indigestion due to improper feeding.

Air—fresh, pure, outdoor air, day and night. Protect the baby from cold draughts, direct sunlight, and dust; but never keep a baby confined in a closed room, particularly a crowded room or a closed bedroom.

Water that has been boiled five minutes and served tepid, never ice-cold. Spoons, cups, and nipples for baby should also be boiled just before using.

Sleep—undisturbed by people, noise, or strong light. Give baby a bed of his own. Never rock the baby to sleep.

Regular habits of nursing, sleeping, bowel movement, bathing, and exercise. Persist in this from the beginning, and regular habits will soon be formed.

Bathing in lukewarm water daily. A quick bath before going to bed often prevents a restless night.

Clothing that is light and cool in summer and light and warm in winter. If there is heat rash, replace the linen bellyband with a woolen one, clothe more lightly, and bathe in water having a tablespoonful of ordinary baking soda to each gallon of water. Should the woolen band irritate, line with a piece of old soft linen, or dust with powder.

Pure Milk Ordinance Passed in St. Louis.

St. Louis has just scored a big victory for clean milk. The Municipal Assembly has almost unanimously passed the bill drafted by the board of health and supported by a score of civic and social service organizations of the city and by the St. Louis *Republic*, which has been waging an active health campaign.

"The bill provides for the same rigid standards for milk as are recommended by the federal Department of Agriculture. All milk dealers hereafter must register with the board of health, which has full power to grant and revoke permits.

"The chief provision, however, is that one year after the date of passage, all milk sold in St. Louis must either be pasteurized by the Held method or come from cows inspected by the board of health.

"The bill was endorsed by the large milk companies, which receive their supply from outside of the city, and which pasteurize practically all their milk. It was bitterly opposed by the city milk dealers. There are 1,750 cows kept within the city limits of St. Louis. No new dairies have been allowed for a number of years. The dairies now within city limits are survivors of the days when much of the city area was in farm land."

Survey, May 16, 1914.

Disinfection of Dirty Clothing.

"Much of the clothing which is received at the Birmingham municipal disinfection station comes from the poorest class of houses, and is dirty when received, with a result that the process of steam disinfection fixes many of the stains in the clothing, and makes it impossible for the owners to wash them out. Such substances as milk, urine, tea, or similar organic fluids, if spilled upon a clean sheet, and then disinfected in a steam disinfecting apparatus, will cause a more or less permanent stain to be produced. A good deal of time was spent during last year in experiments with a method of dealing with such articles without fixing the stains, and Drs. Higgins and Dale proved that by putting the articles into a warm chamber in which a vacuum is produced it is possible to kill with moist formalin vapor all ordinary infections quite effectively. An apparatus for this purpose has been fixed, and is working quite efficiently. Dr. John Robertson, M. O. H., has advised that if a new station were provided it would be desirable that a laundry should be erected, so that clothing might be first of all washed and dried, then disinfected, mangled, and returned in a reasonably clean condition."

The Medical Officer, May 2.

PUBLIC HEALTH NOTES.

Water-borne Malaria.

The *New York Medical Journal*, in its issue of May 16, contains a very interesting article by Dr. Charles S. Braddock of New York, late Chief Medical Inspector of the Royal Siamese Government, which brings up the old question of the causation of tropical malaria. Doctor Braddock has made personal observations in Cuba and Hayti when a lieutenant of the line in the United States Navy, and in Siam, French Indo-China, Siamese Malaga, the Malay States and along the Eastern Burmese frontier while in the Siamese government service, and unofficially in Ceylon and Egypt. From this varied experience he cites numerous cases which indicate that, while the work of the Italian scientists in proving that malaria is carried by anopheles was correct, it was not complete, since they did not prove that the mosquito was the sole cause.

He believes that in many cases, especially in the tropics and in connection with true malaria perniciosa, protection from mosquitoes is of secondary importance and that cutting back the jungle so that the sun gets at the soil, using floors in tents, and drinking sterilized water are essentials to complete protection. He presents a large number of cases to substantiate his opinions and while many of them are traditions of the natives and none are scientifically controlled experiments they are certainly suggestive. In conclusion he says:—

"I believe that the mosquito is not the only carrier of malaria, but that, differing from yellow fever, malaria is carried by water and soil, and that the mosquito when not infected by a person suffering from malaria gets it from the water in which it was born."

Fly Traps.

"The city of Redlands employs a man whose sole duty it is to look after our municipal fly traps which are placed on the sidewalks in the down-town section by our merchants. This man baits and empties the traps daily.

"These traps are made on the multiple cone plan and in different sizes, although the character of the type is uniform. From September 1 to September 24, or the first three weeks after these were all in place, this official, A. E. Chapman, caught fifty gallons of flies in the traps, which he estimates to be equal to 3,750,000 flies. The local papers state that these traps have kept the business houses almost entirely free from flies. Each day the traps on the streets are baited with material which will attract the flies, first being emptied of those which had been collected during the previous day. The flies thus collected are burned."

Municipal Engineering, June, 1914.

It is interesting to note that *Public Health Reports* records the passing of an ordinance in Redlands, Cal., which requires that every person in charge or control of any store, market, restaurant, or other place where food or foodstuffs are sold, served, or dispensed, and every owner or person in charge of a public stable, shall maintain in his place of business one or more fly traps properly baited. It fixes the minimum size of these fly traps at 500 cubic inches and makes it the duty of the health department to inspect the traps from time to time to see that they are efficiently maintained.

Red Cross Seals.

"In spite of financial depressions and other obstacles, the Red Cross Christmas seal sale in 1913 exceeded that in 1912 by nearly 3,000,000 seals or a total of 43,000,000. Beginning with 13,500,000 seals in 1908, in six seasons the revenue which these little holiday missioners have brought to the anti-tuberculosis campaign has more than trippled, an aggregate for the entire period of over $1,800,000.

"What this money has meant to the

many struggling local and State anti-tuberculosis associations who have received it, is best evidenced by the rapid increase in the number of new agencies and the growing efficiency of existing ones. The anti-tuberculosis campaign owes much to the American Red Cross for its broad-minded and sympathetic coöperation in this important movement.

Journal of Outdoor Life, June, 1914.

Twin Cities' Milk Supply.

A report on the milk supply of the cities of Urbana and Champaign, Ill., by Prof. Horatio N. Parker of the University of Illinois, comes to our attention which shows the good work being done by an educational institution in trying to help improve the milk supply.

"The University Dairy provides practical experience for students taking the course in city milk supply; it provides a good quality of raw milk for a few, and it has enabled dairy men to get a good price for their milk because it has created discriminating customers and so a demand for good milk."

The following opinion of the writer of the report, as to the three probable ways of solving the problem of these two cities, may also be applicable to other cities in similar circumstances:

"To the writer, it seems likely that the problem will be solved in one of the following three ways:

"1. By some local man putting enough capital into the business to enable him to operate his farm on a large scale, with modern labor-saving machinery, and a first-class equipment for bottling milk, and sterilizing milk bottles, etc.

"Amongst the difficulties such a one would have to contend with are bad roads and the fluctuating demand for milk, caused by the floating population of faculty and students. Thus, this population on June 1, 1913, numbered 4,014; by July 1 it was reduced to 784, and on the first of August to nothing. On October 1 it was increased to 4,384.

"2. Some large dealer in Chicago, Peoria, Kankakee or elsewhere may capture the trade from the local dealers and farmers by shipping in milk and at the same time inaugurating a delivery system that shall have courteous employees and be reliable. That this has not actually happened is, perhaps, because the entire milk trade of the two cities is not large enough to be particularly tempting to capital.

"3. A serious milk-borne epidemic may convince both business men and the University that an efficiently regulated supply is a necessity."

Coöperation Essential.

In the March number of *Health News*, the bulletin of the New York State Department, is an article on "Fly Control" by Dr. E. P. Felt, State Entomologist, from which the following is quoted:

"A fly campaign should be planned on broad lines and the enemy attacked at every vulnerable point. Such an undertaking is successful only when it receives general support. This must be secured through a widespread knowledge of the true character of the insect and the practicability of control of measures. It is primarily a campaign of education. Flies are an impossibility without a nearby breeding place or exceptional means of conveyance. They ordinarily breed within a few hundred feet of places where they are very abundant. Those who see the possibilities must coöperate. The school children or other groups, such as boy scouts, may do much for the cause. The city or village should be divided into districts, each in charge of an active leader and an earnest effort made to bring all up to a desired standard. Practical limitations should be recognized at the outset and every individual induced to go as far as possible without coercion. Large expenditures are not necessary for a successful campaign. Most people are willing to do the right thing if they can only see the reasonable side of the proposition.

"One practical line of work was illustrated in the campaign against flies in Greensboro, N. C. The stable keepers were interviewed by boy scouts and invited to sign slips, the first of which was an agreement to clean out the stable and haul the manure away each week during the warm season; the second

submitted, in case the first was not accepted, pledged the stable keeper to give the manure to some person who would do this, and the third, in the event that neither of the preceding were satisfactory, obligated the party to have the horse stable well cleaned and bedded with pine sawdust during the summer months. In other words, there was a concerted effort to get every man to go as far as he would in remedying conditions now recognized as insanitary and therefore a menace to the welfare of the community."

The Maggot Trap.

Following the same line of investigation as that reported by Doctor Levy, of Richmond, last year, the Department of Agriculture has recently published a bulletin on the "maggot trap." It is suggested that the unfavorable results obtained by Doctor Terry of Jacksonville were caused by the dryness of the manure used. Whether the cost of the construction is warranted by the results obtained, especially with the carelessness with which the apparatus would be used, ordinarily, is a matter of very much doubt to the writer.

The following brief account of the method of construction is borrowed from a note in the *New York Medical Journal* of March 21.

"A trap to destroy the maggots of the typhoid or housefly before they develop into winged insects is a possible solution of the fly problem and one that should interest health officers, sanitarians, and others who might make use of it on manure heaps where this common pest breeds. The Department of Agriculture's scientists have succeeded in destroying from seventy to ninety-nine per cent. of the maggots in a pile of manure. A large galvanized iron pan, measuring five by three feet, with sides four inches high, was made. In this stood a container on legs eight inches high. This container measured four by two by two feet. The sides and bottom were of heavy wire, one quarter inch mesh, supported by a light wooden framework. Twelve cubic feet of manure well infested with eggs and larvæ were placed in this container and sprinkled with water. Water was also poured into the pan below to the depth of about one inch. Surrounding and covering both pan and container was a fly tight inclosure made of a large cage, six by six by six feet. This prevented further infestation of the manure, and an arrangement of traps at the top of the cage made it possible to capture and keep a record of any flies that might emerge. At the time for the emergence of flies the sides of the cage were darkened with black cloth in order to drive the flies into the traps at the top. Each day the maggots were collected from the pan and counted, and each day the manure in the container was sprinkled thoroughly with water and the pan was washed out and again partly filled with water to drown the larvæ which fell into it. From ninety-eight to ninety-nine per cent. of the maggots were destroyed, if the manure was kept moist; from comparatively dry manure about seventy per cent. were destroyed."

Religion vs. Health.

The May 23 issue of the *Weekly Bulletin of the New York Department of Health* contains the following note on the sanitation of the ceremonial baths of the Jewish synagogues:

"A conference called by the commissioner of health met last week to consider the subject of Mikveh's cleansing pool baths whose regular use is required by the Jewish faith. These pools have recently been made the subject of a bacteriological investigation by Dr. Manheimer of Columbia University and independently by the department of health. They showed that the Mikveh pools, as at present conducted, are a serious menace to the health of the people using them, and indicated the need of steps to render them sanitary.

"While no definite program has yet been formulated, the department feels that the enforcement of regulations similar to those recently adopted for floating baths would prove feasible. These provide for a preliminary cleansing shower bath and include regulations regarding the cleanliness of the water in the pools. The problem has been presented to the Board of Authoritative Rabbis of the Jewish Community of New York City with request that they submit suggestions to the department in the near future."

The grace with which the Protestant

churches yielded to the suggestion of sanitarians in the matter of replacing the common communion cup by individual cups may well be copied by the Jewish authorities. Following the same line, an investigation of the sanitary aspects of the use of holy water in Catholic churches may well be undertaken. We enthusiastically condemn the bathing in the Ganges and the kissing of the Kaabah as a means of spreading cholera but are inclined to neglect our own religions.

State Tenement House Law.

"Twenty-one towns in Massachusetts have now adopted the State Tenement House Law for Towns. In two cities, Springfield and Worcester, an active campaign is being waged to secure the adoption of the State Tenement House Law for cities. In both towns and cities the chief bone of contention seems to be the wooden three-decker tenement house, which these laws practically prohibit. In the towns, the prevailing sentiment is strongly against such structures, which have not yet secured a strong foothold but which threaten to appear in numbers, depreciating property values and changing the social life. In the cities, the prevailing sentiment seems to be the other way as many Massachusetts cities are already predominantly three-decker cities and consequently the three-decker, despite its admitted faults, has become a vested interest whose owners are numerous enough and influential enough to successfully resist any but the most determined attacks."

Housing Betterment, April, 1914.

School Inspections and the Family Doctor.

Not infrequently there is a veiled but evident opposition to the introduction of medical inspection of school children from the general practitioner who has not investigated the matter and fears that it will cut down his practice. Where it has been tried, however, it is found that the reverse is true as the following note from a recent issue of *The Medical Officer* testifies:

"That school medical inspections have definitely affected the practice of family doctors all over the country is an opinion advanced by Dr. A. D. Edwards, M. O. H., in his last report as school medical officer for Bournemouth. He points out that, through the inspections, parents are now aware of the advantage of treating early handicapping ailments such as adenoids, and so they take their children for treatment of these conditions to medical practitioners, who pass them to the hospitals in large numbers. 'It is evident,' says Dr. Edwards, 'that the institution of school medical inspection has a wider significance than that of the diagnostic work of the medical inspector; its institution has influenced the practice of every doctor and will increase the chance of health of every child in the land, rich or poor.' "

New Houses and Health.

"New houses are constantly offered for rent in large numbers in the United States and real-estate agents are naturally desirous to fill the houses on their lists with tenants as soon as possible. Probably a little investigation would show the desirability in this country of requiring a certificate that a new house will not endanger the health of its occupants before families are allowed to move into it. Such municipal regulations are proving valuable in England. Toward the close of 1912 the Portsmouth (England) corporation decided that thereafter no new building intended for human habitation in that borough should be occupied until it had been certified as sanitary in every respect. Dr. A. Mearns Fraser says: 'The principal evil that it will prevent is the occupation of houses before they have had time to dry.' He adds: 'I would far sooner live in a house with defective drainage than in a damp house; the results from the latter are more insidious in their onset and more difficult to overcome. Dampness undoubtedly greatly favors the incidence of consumption, bronchitis, rheumatism, heart-disease and diphtheria. Probably children are more susceptible to the ill effects of damp houses than adults.' The departments of health of our cities might well take up this question. Probably most American municipalities already have the legal power necessary to require such certificates and the question is only one of

making the regulation and establishing the custom."

Journal of the American Medical Association, May 30, 1914.

"Disease Can Be Spread by Transfer Slips."

Under the above impressive heading, the *Bulletin of the Health Department of Louisville, Ky.*, prints the following:

"We have a system in Louisville of paper transfer slips on the street cars. These innocent looking, gayly colored bits of paper are sometimes the carriers of dangerous diseases. The explanation is quite simple. The slips are furnished the conductors in small pads, and it is usually difficult to separate them when only one is wanted. Consequently the conductor wets his thumb in his mouth, takes hold of the transfer slip, tears it off, and passes it on the passenger probably with a deposit of dangerous bacteria, from the secretions of his mouth.

"It is no uncommon thing to see a passenger holding his transfer slip between his lips. This is particularly true of women, owing to the difficulty of opening their purses. If an individual is infected with tuberculosis, diphtheria, grippe, syphilis, a common cold, etc., the germs of the disease are found in the mouth secretions. If transfer slips are held in the mouth, and they have previously come in contact with the mouth secretions of another individual, there is great danger of disease infection.

"In some progressive cities with a high standard of hygiene, each street car conductor is furnished with a small wet sponge fastened to a tray which also contains the pads of transfer slips, thus avoiding the possibility of disease being spread in this way.

"DON'T PUT TRANSFER SLIPS IN YOUR MOUTH!"

That disease might be carried by transfer slips we cannot deny. That it has been thus carried we probably cannot prove. That the small sponge suggested above, exposed to the dust of the car and the spray from sundry coughs and sneezes, would be an improvement we must doubt. Putting transfer slips in the mouth is a far greater affront to decency than to sanitation. The person who sneezes or coughs in public without covering his mouth and nose closely and with his handkerchief, not his hand alone, is still more indecent and, doubtless, far more dangerous to the health of those about him.

Camp Sanitation in Mexico.

The Engineering Record has been fortunate in obtaining for publication is its issue of May 16 an article by Surgeon-General Gorgas, formerly of the Canal Zone, on United States Army Camp Sanitation in Mexico. The article discusses the prevention of camp diseases and takes up especially the most up-to-date methods of obtaining pure water, of disposal of excreta and other refuse, and of the prevention of flies; as well as other more general topics. It is a discussion of considerable interest to any reader and is especially important for those whose work includes the control of temporary camps of any sort.

The Negro and Public Health.

That the negro may stand in another relation to public health than merely as a menace is indicated by the following clipping from *The Southern Workman* (May, 1914), a magazine published at Hampton Institute in the interests of the negro and indian.

"Last year over 130,000 heads of negro families engaged in the clean-up day campaign which was organized by some of the thoughtful negro leaders who have the confidence and respect of white and colored Virginians. The great possibilities for good to all the people of the Old Dominion, especially to the colored people, shown by the results of last year's clean-up day, convinced the Negro Organization Society that it would be well to devote at least a week this year to the work of cleaning up backyards, houses, barns, outhouses, schools, and churches for the promotion of better public health.

"Before this issue of the *Southern Workman* reaches readers in distant states, thousands upon thousands of Virginia negroes will have taken an active part in getting rid of accum-

ulated rubbish and other disease-breeding elements.

"Major Moton, of Hampton Institute, who is the president of the Negro Organization Society, has made clear to many thoughtful men and women throughout the country that the public cannot afford to have negroes live amid insanitary surroundings. The principle of self preservation demands that white men and black men must work together for the improvement of the living conditions of those who play a large part in the care of white children and white families.

"That the negro leaders in Virginia have succeeded in winning the coöperation of the State Board of Health, the white and colored papers of Virginia, and other agencies that help to create public opinion, shows clearly the reasonableness and usefulness of the public health work which has been undertaken by the Negro Organization Society of Virginia."

Quarantine Regulations in the Canal Zone.

The Canal Record, published by the government at Ancon, Canal Zone, contains in its issue of June 10 the latest additional quarantine rules and regulations of the Zone and the cities of Colon and Panama. These regulations are the more interesting in view of the recent alarm in regard to the possibility of the canal becoming a menace to the health of the United States.

They include special regulations on account of cholera, yellow fever, plague, smallpox, typhus, and leprosy, both foreign and local; advisory requirements for vessels at sea; and a detailed statement of the disinfectants authorized by the United States quarantine regulations, and the proper methods of generating and using the same, and of agents for the destruction of rats, mosquitoes, and other vermin.

To Prevent Suburban Slums.

With the great influx of foreigners to our shores comes the growing question of how to take care of them properly. With this problem has come what might be called the science of city planning. *Housing Betterment* for April, 1914, says on this subject:

"One of the most important powers a city can have, if it is to prevent the development of slum areas in the future, is that giving it the right to control the layout of streets beyond its borders. The size of blocks and the width and arrangement of their boundary streets often exercise a determining influence on the character of the housing. The lot unit is largely determined by the block unit. If the block is too wide, the lots will be too deep and the coming of rear dwellings can safely be prophesied unless the city has reserved a right of way for a new street through the middle of the block which may be opened when the district looses its suburban character. If the street is too wide and expensive, land overcrowding and the erection of tall dwellings to carry the burden are almost inevitable. On the other hand if the streets are too narrow, or if no main arteries are provided, or if the lot units are too small, the speculators may make quick sales to small buyers, but the city will have a long future full of trouble when it absorbs the new, misfit development.

"Toronto has provided against all these difficulties by securing a city and suburbs planning act which gives it the power to control all subdivisions within five miles of the city limits, with respect to the width and number of streets and the direction in which they run, and the width and depth of lots. Though this act became effective May 4, 1912, the Toronto Civic Guild calls attention to it once more lest its possibilities be overlooked. Pennsylvania has a similar law for cities of the third class, giving them jurisdiction for three miles beyond their borders."

Sanitation in the Library of Congress.

"Public towels have been banished from the Congressional Library, and in their place have been substituted paper towels. But the public drinking cup is still in evidence. This must seem somewhat of an anachronism to visitors who have ridden to the capital in cars in which the government has abolished by law the public drinking cup. If the rail-

way companies should furnish public drinking cups for their patrons, they would be punished by Uncle Sam; but in his most ornate building, Uncle Sam himself still displays the public cup. When the attention of the librarian was called to this discrepancy, he replied that the management was endeavoring to find some device that would be *sanitary and yet esthetic*. Until Miss Sanitation can appear attired in garments that harmonize with the surroundings, she must not show herself in the great library building. Esthetics first."

Life and Health, April.

The Milk Consumer.

In our efforts to improve conditions of milk supply and educate the producer, the consumer is often neglected. This is unfortunate since the consumer is almost always ignorant of the proper way to handle milk after he has received it. From the April issue of the *Portland Health Bulletin*, come the following "Don'ts" for consumers:

"Don't take milk from your dairyman unless it is in bottles.

"Don't leave milk where it will be exposed to warmth. Remove it to a cool place, all entirely away from all vegetables.

"Don't remove the cap from the bottle nor pour the milk out without wiping off the top of the bottle.

"Don't replace the cap on the bottle of milk after it is once removed; place a clean glass or cup over the neck.

"Don't pour milk back in the bottle from pitcher; take out only enough for the meal.

"Don't neglect to ring up the Milk Department at the City Hall to find out about your milk supply."

Sanitary Comparisons.

"It is with a great deal of regret that American health officers are compelled to admit that European cities are more careful to observe sanitary regulations. The result is the cleaner and better kept foreign city which the American tourist so often speaks of. People so often resent the timely advice of health officers, and worse, refuse to accept it, which tends to prove the contention that education of the general public along sanitary lines is the phase of health work which needs the most emphasis.

"If the public-spirited individual who founded the hospital had devoted the same amount to the prevention of disease, the returns would have been many times greater. What an investment this would be!"

Health Bulletin, Portland, Ore., May.

PERSONAL NOTES.

The following persons were elected to membership in the American Public Health Association June 24, 1914:

C. Ward Crampton, M. D.; Francis Brown Grinnell; Harry M. Kay, M. D.; Fred W. Luening, M. D.; Joseph Edward Raycroft; George D. Ruhland; William Davison Stovall, M. D.

Mr. Stephen DeMerritt Gage has resigned from the position as biologist at the Lawrence Sewage Experiment Station of the Massachusetts State Board of Health, which he has held for so many years, to accept the position of chemist to the Rhode Island State Board of Health. Address, 310 State House, Providence, R. I.

Dr. C. H. Clair Drake, assistant chief of the Bureau of Vital Statistics of the Chicago Department of Health, and since 1909 editor of the department bulletin, has resigned from his position to become secretary of the Illinois State Board of Health.

The State Board of Health of North Carolina has secured Dr. L. B. McBrayer of Asheville to take charge of all the antituberculosis work of the state, including the management of the sanitorium. Doctor McBrayer has been employed as health officer of Asheville and has made a great success of his work there, in addition to taking an active part in medical and sanitary work throughout the state.

Another addition to the forces of the North Carolina health work is in the person of Dr. Merrill E. Champion who is employed in the field force of the Hookworm Commission. Doctor Champion holds an A. B., and an M. D. from Harvard and a C. P. H. from the new School for Health Officers. For the past eight years he has served as health officer of Arlington, Mass.

Mr. Max J. Colton, health officer of the city of Summit, N. J., has resigned from that position to become health officer of Cumberland, Md.

INDUSTRIAL HYGIENE AND SANITATION

Industrial Insurance.

In the June 5, 1914, number of the government *Public Health Reports*, J. W. Schereschewsky, surgeon, United States Public Health Service, discusses the question of industrial insurance and its relation to the medical examination of employees and prevention of sickness. He believes that the efficiency of the social unit is more determined by his physical condition than by anything else. And it is only recently the idea that inefficiency, due to ill health, is a burden which ought to be borne by the whole of society instead of by the individual. Therefore industrial sickness insurance becomes a logical means by which society may equitably distribute these costs resulting from physical inefficiency. The first aim of industrial insurance should be to prevent illness, rather than pay the costs of preventable diseases and disabilities.

To use Doctor Schereschewsky's own words:

"Granted, then, that systems for industrial sickness insurance, in common with other public health work, should rest upon a preventive basis, the primary object of such insurance would be to detect incipient defects and diseases among workers, or to prevent the development of diseased conditions by proper precautionary measures. It is evident that this object will be most readily attained by means of the frequent periodic physical examination of employees and an inspection of their environment In no other way can the first beginnings of disease be so readily detected, or the adverse influence of unhygienic conditions averted. It is to be understood, of course, that we are not to rest content with the mere detection of such incipient defects and diseases, or of unhygienic conditions among workers, but their discovery should go hand in hand with an earnest effort to discover the adverse factors at the root of the matter. The inquiry, therefore, is not to be terminated until the offending condition has been removed and progress has been made toward renewed health and efficiency."

Therefore, from the above and other arguments Doctor Schereschewsky feels justified in drawing the following conclusions:

1. Industrial sickness insurance is an economic necessity in modern social evolution.

2. The basis upon which industrial insurance should rest is the prevention of illness and physical disabilities.

3. Frequent periodic physical examinations of workers constitute the logical means by which defects and diseases can be detected in their incipiency.

4. The scope of such examinations should be extended to include home as well as factory conditions.

5. Industrial insurance based upon preventive measures should redound greatly to the benefit of society.

(a) by reducing the annual loss of time through illness;

(b) by establishing hygienic standards;

(c) by establishing minimum hygienic standards for industries;

(d) by favoring the enactment of uniform industrial legislation;

(e) by increasing the efficiency of local health authorities.

6. The cost of carrying industrial insurance based on preventive principles should be less than that of present systems.

"First Aid to the Uninjured."

"The vogue of the term 'Safety First' shows that the public conscience has really awakened. It means war on the impairment of human strength, the maiming of human bodies, and the destruction of human life that have accompanied the enormous modern growth of railways, factories, mines, and works of construction.

"The term of course covers everything that is being done to make industry and travel safer, from improved life-saving apparatus to 'campaigns of education' for employees and the general public. Safety devices

are no substitute for intelligence and faithfulness. Yet the standard of safety to be striven for on the mechanical side through invention must be set as high as the standard to be sought on the human side through education.

"Of course the human side remains the more important, as well as the larger and the more complex. The American Museum of Safety now awards annually six medals: the E. H. Harriman medal goes to a steam railway for 'progress in safety and accident prevention'; the Anthony N. Brady medal to an electric road, for 'accident prevention and industrial hygiene'; the Travellers' Insurance medal is awarded to an American employer 'for protecting the lives and the limbs of his employees'; the Louis Livingston Seaman medal is given 'for progress and achievement in the promotion of hygiene and the mitigation of occupational diseases'; the Rathenau medal is for 'the best device or process in the electrical industry for safeguarding industrial life and health'; the *Scientific American* medal goes this year to a marine equipment company 'for new types of life-saving apparatus.' The greater part of the success of the man or the corporation that wins any one of the first four of these medals must be owing to the kind of educational work that the Safety First Association calls 'First Aid to the Uninjured.'

"Since one of the claim agents on the Chicago & North Western Railway a few years ago succeeded, by an educational campaign of twenty-eight months, in reducing the number of deaths on the railway by almost one-quarter, and the number of injuries by more than a quarter, bureaus of safety have been organized on railways that together own more than half the mileage in the United States.

"It is easy to imagine most of the forms that this educational work takes, but one of the latest forms is new. The bureau of safety of the Union Pacific Railroad has put together on one large placard seven photographs that show the different ways in which children risk life and limb when they trespass on railway property, and has hung a copy in every schoolhouse in Nebraska along the line of the railway. It also issues periodically short articles on 'Accident Prevention,' and distributes them in the schools. The experiment has the hearty coöperation of the school authorities.

"There is no royal road to safety, any more than there is to any other desired end. Education often seems a roundabout way of approach, but it is the one sure way."

Youth's Companion, April 9, 1914.

Dust as a Predisposing Factor to Tuberculosis.

The *Health Bulletin* of the North Carolina State Board gives the following report of some investigations of the relation of dust to tuberculosis but unfortunately fails to quote its authority:

"The following interesting experiment was recently performed on guinea pigs to determine, if possible, the effect of dust as a predisposing factor in tuberculosis of the lungs. A lot of guinea pigs were subjected to dusty air from two to four hours daily for ten weeks. At the end of that time part of these pigs, as well as some other pigs that had not been subjected to the dusty air, were infected with the germs of tuberculosis. The results obtained were as follows:

"1. The guinea pigs subjected to dust, but not infected with tuberculosis, lived and showed no unfavorable conditions even after an autopsy.

"2. A number of guinea pigs were infected with tubercular germs but not previously submitted to dusty air. Almost all of these got well from the tubercular germs.

"3. All the guinea pigs which had been subjected to the dust and which were later exposed to the tuberculosis injections died of violent pulmonary tuberculosis (consumption).

"In some this was a rapid process; in most cases it was slower. The animals wasted away steadily and did not suffer death until two or three months had elapsed after the injection. In all these cases autopsies showed grave tubercular infection of the lungs.

"The results of this experiment show that dust in itself without the germs of consumption does but little harm, but when dust is accompanied by germs of consumption it is almost sure to bring on consumption."

The Cost of Safety.

Just as in all lines of public health conservation it is necessary to estimate the efficiency of any measure under consideration and determine whether the saving warrants the expenditure so in the case of accident prevention. The following note from the *Engineering Record* (June 6) points out the fact that the public pays for safety measures in industry less directly but just as surely as if they were bought with the income from a tax or by the appropriation of the health department.

"Addressing the master boilermakers at their recent convention at Philadelphia, Ivy L. Lee, executive assistant of the Pennsylvania Railroad, pointed out that, important as is the safety of the individual, reason and justice impose sharp limitations on the financial burdens to be put upon society to bring about such safety. As he states it, safety must be paid for out of income; otherwise principal is spent and resources are exhausted. Having done this, ordinary safety measures, obviously, cannot be paid for. Therefore it is only feasible to protect man up to a certain point and then make him look out for himself or assume the risks. Otherwise, as Mr. Lee says, we would never transport dynamite or even cross a street. Because families frequently burn to death in their homes, we would allow only fireproof construction, and would close buildings that were not fireproof. This would raise rents beyond the reach of the majority of dwellers. So it is with the railroads. Mr. Lee admits that 'Safety first' should be the motto of every railroad, and surely the road he represents cannot be accused of laxity in this respect. But the motto of many legislative demagogues, 'Safety at any cost,' will bring disaster if carried to extremes. It is reasonable to demand that in new installations railroads not utterly bankrupt should use the safest designs known, and that they should carry out a program for replacing unsafe equipment as rapidly as possible. It is not reasonable to expect them to replace all wooden cars with steel at once, equip all their lines with block signals in a year, or eliminate all grade crossings forthwith at their own expense. The railroads—that is, the public who foot the bills—have not the money to pay for these things, and the mechanical safety obtained for individuals would be far more than offset by the social danger of financial paralysis."

Voluntary Sanitary Standards in Industry.

"Every new sanitary regulation of industry is denounced by well-meaning individualists as an invasion of personal liberty. In a society composed wholly of enlightened and altruistic individuals, there would be little need for legislation of this kind; but under present conditions those who advocate the adoption of restrictive laws usually do so in the belief that carefully considered social legislation tends, in the long run, to increase the value of human life and to promote the welfare and progress of the race.

"While individualists believe that regulative legislation has been overdone, the voluntary organization and successful activity of such a body as the Joint Board of Sanitary Control of the Cloak, Suit and Skirt Trades, and the Dress and Waist Industries of New York City—in other words, the banding together of employers and employees, in a huge industry, for the sanitary regulation of its manufacturing establishments—is an indication that in some quarters, at least, the need is recognized of establishing working standards over and above those which are legally enforced. If employers and employees in large industries generally would get together in this way the work of social reformers would be largely supplanted, and the activities of boards of health and of other state and municipal departments would be materially diminished. Among the commendable sanitary rules which have been voluntarily adopted by the Joint Board of Sanitary Control are the following:

"1. No shop to be allowed in a cellar.

"2. Fireproof receptacles, lined with tin and having a tin cover, to be provided in sufficient numbers for rubbish.

"3. Halls and stairways leading from shops to be adequately lighted by natural or artificial light.

"4. Sufficient window space to be pro-

vided for each shop, so that all parts of the shop are well lighted during the hours from 9 a. m. to 4 p. m.

"5. Where gas is burned, arc lights or incandescent mantles should be used.

"6. All lights to be well shaded, to be placed above operatives, and not too near them.

"7. At least 400 cubic feet of space, exclusive of bulky furniture and materials, should be provided for every person within the shop.

"8. The shop should be thoroughly aired before and after work hours, and during the lunch hour, by opening windows and doors.

"9. Walls and ceilings of shops and water-closet apartments should be cleaned as often as necessary, and kept clean.

"10. Floors of shops, and of water-closet apartments, to be scrubbed weekly, swept daily and kept free of refuse.

"11. Water closets to be adequately flushed and kept clean.

"12. A sufficient number of water-supplied wash basins to be provided in convenient and light locations within the shop.

"13. All waste materials, cuttings and rubbish must be removed twice a day from the floor of the shop and once a day from the building.

"14. In all shops where more than twenty-five women are employed, provision should be made for rest and emergency rooms for their use."

Bulletin of the Health Department of New York City, May 23, 1914.

Cannery Labor Camps.

The Industrial Board of the Department of Labor of New York State have issued very interesting and valuable pamphlet, entitled "Rules and Regulations for the Sanitation of Living Quarters in Cannery Labor Camps." The sanitary regulation of labor camps of various kinds has come to be studied more and more of late years. Therefore this set of rules ought possibly to be of some assistance to others studying the question.

The rules are taken up under various heads some of which are specifications as to the construction of the buildings, floors, air space, windows, kitchen and dining-room, beds, privies and water closets, water supply and drainage.

The second part of the rules deals with the maintenance of the houses, the cleanliness of the rooms, privies and bedding; the disposal of refuse and garbage, duties of caretakers, etc. To make the regulations complete the state law authorizing the rules, is quoted.

Drink and Work Accidents.

"'Workmen frequenting drinking places coming to or going from their work will be replaced by non-drinking men as rapidly as possible.'

"This notice, posted in the American Car and Foundry Company's plant at Berwick, Pa., has resulted in a marked decrease in accidents among the 5,000 men employed there. It was put up following the visit to Berwick of the Rev. Henry W. Stough, who conducted a vigorous crusade against the drink evil.

"The meetings by Doctor Stough were held at the end of October and the beginning of November. Since that time, it is asserted, accidents have been reduced 34 per cent. The output in the passenger car department has been increased from one and one-half cars a day to two cars, with the same force employed. The bank deposits in the six weeks following the meetings were $80,000 larger than in any other six weeks' period.

"It is reported that the judges in Berwick will refuse to grant any licenses in the town next year."

Survey, May 16, 1914.

CURRENT PUBLIC HEALTH LITERATURE.

AMERICAN.

Boston Medical and Surgical Journal.

CLXX, No. 18. April 30.

The Field Work of the Anti-Tuberculosis Association. S. H. Stone.

CLXX, No. 21. May 21.

Feeble-Mindedness as a Leading Social Problem. E. E. Southard.

Engineering Record.

LXIX, No. 22. May 30.

Smoke Abatement in Denver (abstract). F. E. Shephard.

LXIX, No. 23. June 6.

Water Purification at Cleveland.
Privately Owned Sanitary Sewerage System.

LXIX, No. 24. June 13.

Hypochlorite Treatment Now Firmly Established.

LXIX, No. 25. June 20.

New Water Supply for Waco, Texas.
Operating Results of Staten Island Refuse Destructors.
Violet Ray Sterilization for Niagara Falls Filter.
Changed Plan for Panama Water Supply.
Slow Sand and Mechanical Filter Costs. J. H. Gregory.
Report on Plan of Refuse Disposal in St. Paul.

Journal of the American Medical Association.

LXII, No. 21. May 23.

The Sources of Danger in Anti-Meningitis Serum, Pellagra and Infection.
Fatal Attack of Filarial Lymphangitis Simulating Bubonic Plague. I. G. Martinez.

LXII, No. 22. May 30.

Carbon Monoxide and Canaries in Mines.
The Death-Rate for 1913.
The Streptococci in Milk.

LXII, No. 23. June 6.

Typhoid Fever. C. O. Jordon.
Results from the Use of Living Lactic Acid Bacilli on Diphtheretic Throats in Two Groups of Cases. E. V. Golts and W. D. Brodies.
The Early Diagnosis of Lead Poisoning. H. Linenthal.
Practical Study of Goat's Milk in Infant Feeding as Compared with Cow's Milk. D. H. Sherman and H. R. Lohnis.
Large Cities as Health Resorts.

LXII, No. 24. June 13.

Recommendations as to Sanitation Concerning Employees of the Mines on the Rand, made to the Transvaal Chamber of Mines. W. C. Gorgas.

LXII, No. 25. June 20.

Hookworm Disease: Its Ravages, Prevention, and Cure. J. A. Ferrell.
The Germicidal Activity of Calomel. J. F. Schamberg.
The Transmission of Typhus Fever.
The Prophylaxis of Tetanus.

Municipal Engineering.

XLVI, No. 6. June.

The Water Works of Bridgeton, N. J.
Progress in Water Works Purification.

The American City.

X, No. 6. June.

Malaria as a Field for Philanthropy. W. H. Deaderick.
The Combined Treatment of Tuberculosis and Poverty. J. A. Kingsbury.

The American Journal of Clinical Medicine.

XXI, No. 6. June.

The Diarrheal Diseases of Infancy and Childhood. Geo. F. Chandler.
The Therapeutic Use of Living Bulgarian-Bacillus Cultures. J. F. Biehn.

New York Medical Journal.

XCIX, No. 20. May 16.

The Need of Hospitals for Whooping-Cough in New York City. G. R. Pisek.

XCIX, No. 24. June 13.

Isolation. P. G. Woolley.

American Journal of Diseases of Children.

VII, No. 6. June.

Recent Progress in Infant Welfare Work.

Northwest Medicine.

VI, No. 6. June.

The Local Health Department. S. G. Paul.
Medical Inspection of Schools. E. O. Montague.

Public Health Reports.

XXIX, No. 22. May 29.

Plague and Filariasis: The Possibility of Mistaking One for the Other.
Industrial Conditions: Their Relation to Public Health. B. S. Warren.
Trachoma in Kentucky. J. H. Oakley and Dunlop Moore.

XXIX, No. 23. June 5.

Industrial Insurance. J. W. Schereschewsky.

XXIX, No. 24. June 12.

Reorganization of the Minnesota State Department of Health.
Public Health Administration in Baltimore. Carrol Fox.

XXIX, No. 25. June 19.

The Reporting of Disease—The Next Step in Life Conservation. L. I. Dublin.
Sanitary Work in Vera Cruz During the First Three Weeks of the American Occupation. G. M. Guiteras.
Plague in Hawaii. Geo. W. McCoy.

Southern Medical Journal.

VII, No. 6. June.

Pellagra. R. E. Sylvester.
The Negro, a Public Health Problem. C. E. Terry.

Journal of Experimental Medicine.

XIX, No. 5. May.

Further Observations on the Growth of Bacteria on Media Containing Various Aniline Dyes, with Special Reference to an Enrichment Method for Typhoid and Para-Typhoid Bacilli. Chas. Krumwiede Jr. and J. S. Pratt.

FOREIGN

Dublin Journal of Medical Science.

III, No. 509. May.

Typhus: Its Etiology and Treatment. D. K. Milne.
Notification of Tuberculosis in Ireland. Its failure. J. Moore.

Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege.

XLVI, Part 2. 1914.

The Hygiene of International Trade and its Domestic Significance. O. Tjada.
The Systematizing of Social Hygiene. A. Elster.

Zeitschrift für Hygiene und Infections Krankheiten.

April.

The Sterilization of Water by Ultraviolet Rays. A. Silberman.

British Medical Journal.

No. 2787. May 30.

Further Investigations of the Type of Tubercle Bacilli Occurring in Sputum of Phthisical Persons. A. S. Griffith.

Journal of the Royal Sanitary Institute. London.

XXXV. No. 5. June.

The Certification of Milk and Its Effect on the General Milk Supply. W. Buckley.
How Winnipeg's Milk Supply is Supervised. P. B. Tustin.
Drainage and Sanitary Fittings in Canada. F. J. O. Smith.

Journal of State Medicine, London.

XXII, No. 6. June.

Occupational Fatigue. Sir Thomas Oliver.
The Housing of the Irish Working Classes. R. F. Heron.
The Practice of Disinfection in Tuberculosis. F. Marie Davy.

Lancet, London.

CLXXXVI, No. 4730. April 25.

Vaccination Against Hay Fever. John Freman.

CLXXXVI, No. 4734. May 23.

The Diagnosis of Tuberculosis. The Value of Besredka's Antigen in the Complement Fixation Test for Tuberculous Disease. A. C. Inman.

Medical Officer, London.

XI, No. 21. May 23.

Some Considerations in the Control of Measles. A. Smith.

XI, No. 22. May 30.

The Imperial Health Conference.

XI, No. 24. June 13.

Enteric Fever: A Consideration of Experience Gained on Southwest Germany. W. H. Hamer.
Teaching of Sex Hygiene in the Schools.

Münchener Medizinische Wochenschrift.

LXI, No. 17. April 28.

Danger from Diphtheria Carriers. G. Riebold.
The Teaching of Social Hygiene in the University of Munich, and the Establishment of a Social Hygiene Seminar. Kaup.

LXI, No. 18. May 5.

Smallpox and Vaccination: Their Common Influence. Baümler.

LXI, No. 19. May 12.

On Paratyphoid of Children in Munich. Breuning.

Presse Medicale, Paris.

XXII, No. 39. May 16.

Alimentary Infections by the Gärtner Group of Bacilli. A. Lubs.

Public Health, London.

XXVII, No. 9. June.

Human and Bovine Tuberculosis in Children. E. J. Steegmann.
Hospital Isolation of Scarlet Fever. W. St. McClure.
The Infectivity of Tuberculosis.

Tropical Diseases Bulletin, London.

III, No. 8. May 16.

Amoebiasis and Dysentery. Cholera. Leprosy.

Deutsche Medizinische Wochenschrift.

XL, No. 15. April 9.

Malaria in Southwestern Germany. Malisch.
The Use of Vaccine for Gonorrhea in Children. R. Hamburger.

Archiv für Rassen- u. Gesellschafts-Biologie.

X, No. 5. 1913.

The Studying out of Biological Statistical Problems. W. Weinberg.